

USER MANUAL

IP DSLAM for ADSL *IPDSLAM-A8/A16*



CTC
union **CTC Union Technologies Co., Ltd.**

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About This Manual

Audience

This book is intended for anyone who installs, manages, and configures the ADSL IP DSLAM, one product of ADSL IP DSLAM Series, via CID/RS-232 or Telnet/Ethernet CLI command interface. The ADSL IP DSLAM is a standalone IP-based DSLAM which can concentrate and manage 8/16 ADSL ports.

You must have a basic understanding of ADSL related technologies, be knowledgeable about data communications, and familiar with VT-100 terminal emulation tools.

Purpose

This book describes how to install, manage, and configure the ADSL IP DSLAM system via CLI command Line interface through CID/RS-232 interface or Telnet/Ethernet interface.

Organization

This book provides task-based instructions for installing and using the CLI interface to configure and administrate the ADSL IP DSLAM System. The manual is organized as follows:

Chapter	Title & Description
1	Introduction Provides an overview of ADSL IP DSLAM System, including features, functions, applications of the ADSL IP DSLAM.
2	Getting Started Presents platform and system requirements as well as procedures and instructions for installing the ADSL IP DSLAM.
3	System Administration with EmWeb Provides all the instructions and procedures necessary for you to administer your ADSL IP DSLAM with EmWeb interface.
4	System Administration with CLI Provides all the instructions and procedures necessary for you to Administer your ADSL IP DSLAM with CLI interface.
5	Configuration Back Up, Restore, Update and Rescue Provides the procedures to back up configuration settings from ADSL IP DSLAM and restore to ADSL IP DSLAM. Moreover, the update and rescue procedures are also introduced.

- 6 **Troubleshooting**
Provides some potential problems and possible remedies and helps you diagnose and solve the problems.
- 7 **Appendix A**
Presents the pin assignment for ADSL IP DSLAM
- 8 **Appendix B**

Presents the SNTP time zone abbreviation.
- 9 **Appendix C**

Present the default settings of ADSL IP DSLAM
- 9 **Glossary**
Defines the key terms and acronyms mentioned in this manual.

Document Conventions

Screen displays use these conventions:

#	Login with Administrator privilege
%	Login with operator privilege
>	Login with guest privilege

Commands descriptions use these conventions:

[]	Elements in square brackets are optional
< >	Essential values
< x y z >	Alternative keywords are grouped in < > and separated by vertical bars

Others

Note	Means reader take note. Notes contain helpful suggestions.
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What's the difference between ATM based DSLAM and IP based DSLAM?

Fig 0-1 & Fig 0-2 display the differences between traditional ATM-based DSLAM and ADSL IP DSLAM in PPPoE application sample.

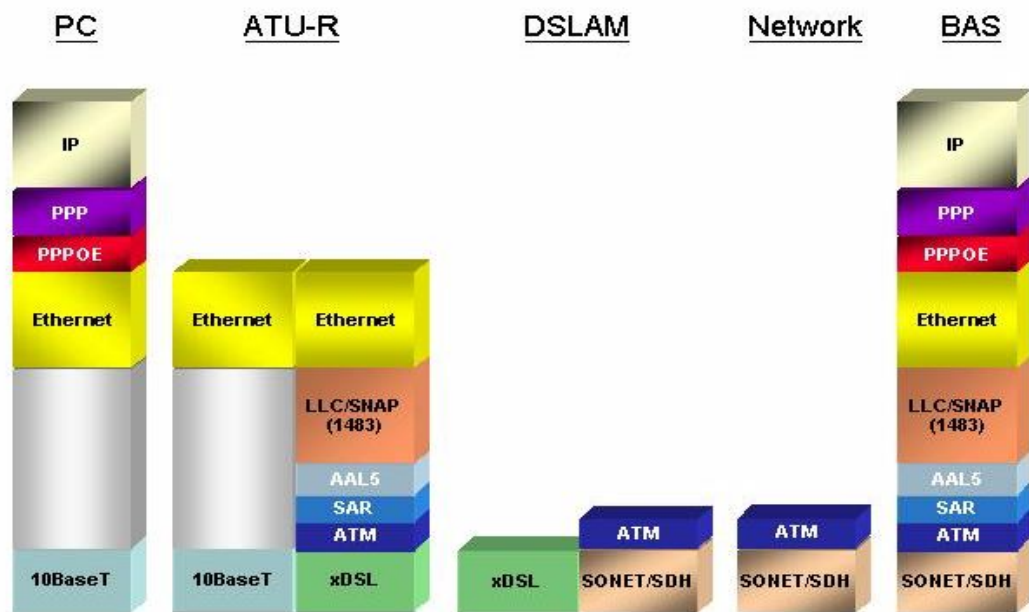


Figure 0-1 PPPoE application in Traditional ATM-based ADSL Network

As Fig 0-1 displays, in traditional ATM-based ADSL network, the user application information is encapsulated by ADSL CPE into ATM cells in pre-defined VC(Virtual Channel, PVC), and then upstream the ATM cells to DSLAM via ADSL link. (In this example, the user information (PPPoE encapsulated) is encapsulated by ATU-R using RFC-1483 Bridge-mode encapsulation format.)

All the ATM cells belong to the specified VC is concentrated by the DSLAM, and switched in the ATM network clouds, to the defined destination (ISPs, Offices, ..), at there the ATM cells and PPPoE frames is resolved by the Broadband Access Server, and the user application information is serviced.

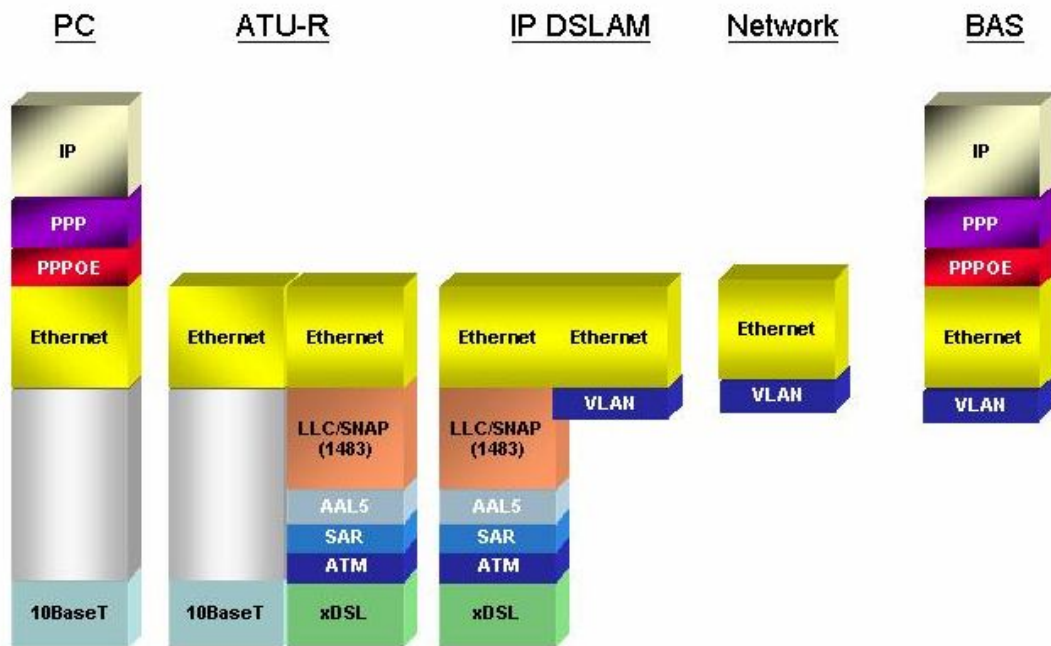


Figure 0-2 PPPoE application in ADSL IP DSLAM with Ethernet-All-The-Way Network

In addition to traditional ATM-based ADSL network. As Fig 0-2 displays, the user application information is still encapsulated by ADSL CPE into ATM cells in pre-defined VC (Virtual Channel, PVC), and then upstream the ATM cells to DSLAM via ADSL link.

In the ADSL IP DSLAM, all the ATM cells belong to the specified VC are decapsulated back to the original PPPoE encapsulated Ethernet packet (if VLAN-mode of the specified ADSL port is disabled), or mapped to the pre-defined Ethernet-VLAN packets (if VLAN-mode of the specified ADSL port is enabled). ADSL IP DSLAM concentrates all Ethernet-with/without VLAN-tag packets from 16 ports' ADSL and uplinks to ISP's Ethernet-All-The-Way network. The PPPoE frames will be resolved at Broadband Access Server (BAS), and the user application information was serviced.

The ADSL IP DSLAM supports ADSL CPE Bridge-mode (RFC-1483 Bridge mode and router mode). For performance concern, ADSL IP DSLAM will not act as BRAS to process user application information directly.

ADSL IP DSLAM provides Ethernet-with/without VLAN tag to ATM-PVC mapping feature for the ISP to isolate user's data with security and to provide lots of service enhancement capabilities. ADSL IP DSLAM supports 2 ATM PVC links for each ADSL CPE.

Introduction

1

1.1 General

This chapter will help you understand the function and application of your ADSL IP DSLAM. It covers

- **ADSL IP DSLAM Overview**

This section describes the overview of your ADSL IP DSLAM. The ADSL IP DSLAM is cost effective solution for you to complete immediate implementation of multiple of services in private and public networks.

- **ADSL IP DSLAM Application**

ADSL IP DSLAM can be applied in MTU/MDU/MHU and Ethernet-all-the-way application.

- **ADSL IP DSLAM Features**

This section describes the features of ADSL IP DSLAM and its specification.

1.2 ADSL IP DSLAM Overview

Using the latest ADSL technology, **ADSL IP DSLAM** offers service providers a very cost-effective solution for immediate implementation of multiple services in private and public networks.

ADSL IP DSLAM can concentrate and manage up to 16 ADSL lines. User can use local RS-232 CID and/or remote TELNET/SNMP to manage the ADSL IP DSLAM directly

Since the ATM backbone coverage is not so general in the real broadband network environment. Instead of traditional DSLAM system provides ATM uplink interface, the ADSL IP DSLAM concentrates 8/16 ports of the ATM over ADSL traffic which is encapsulated by ADSL CPEs, and maps each user's data encapsulated in ATM-PVC to Ethernet-with/without VLAN-tag packet (depends on the VLAN was enabled or not for the specified ATM ports), and then uplink to Telco or ISP directly, User can enable VLAN-PVC mapping capability for each ADSL port independently. The ADSL IP DSLAM acts as bridge for the ADSL ports without enabling the VLAN-PVC mapping feature. ADSL IP DSLAM provides both Ethernet-VLAN and non-VLAN to ATM-PVC mapping feature and bridge mode for the ISP to isolate user's data with security and to provide lots of service enhancement capabilities. ADSL IP DSLAM supports 2 ATM PVC links for each ADSL CPE.

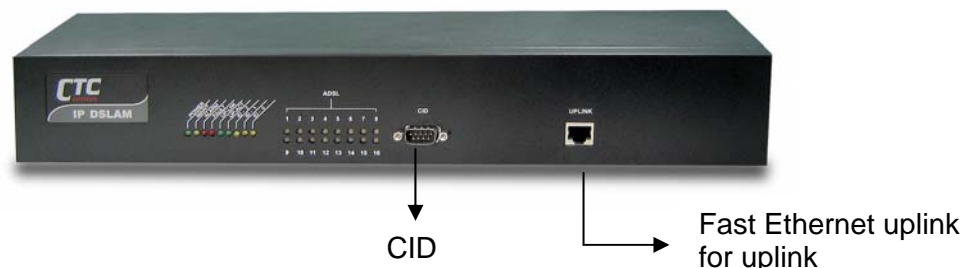


Figure 1-1 ADSL IP DSLAM Front View

As Fig 1-1 displays, in the front view of ADSL IP DSLAM, there are several LEDs to indicate current system and link status and one 10/100 Mega Ethernet interface for uplink.

The ADSL IP DSLAM can be managed via SNMP, but each ADSL IP DSLAM will cost one IP address, and the performance of the ADSL IP DSLAM will be little affected due to CPU usage for the SNMP agent processing.

As Fig 1-2 displays, in the rear-panel, there is one power adaptor, both -42V ~ -56V DC or 90V ~ 240V AC power module can be selected. There are two DSL module slots, each module provides 8-port with built-in POTS-splitter ADSL module, totally 16 ADSL CPE users can be supported in one ADSL IP DSLAM.

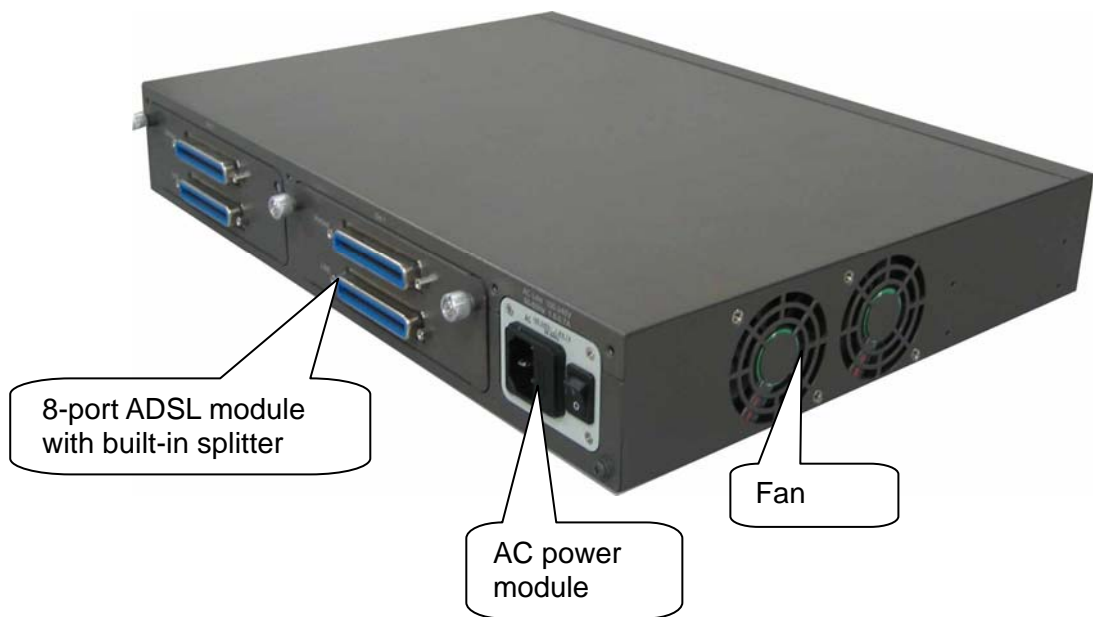


Figure 1-2 ADSL IP DSLAM Rear View

Fig 1-3 displays the LED identification of ADSL IP DSLAM, and Table-1 describes its color definition and status description.

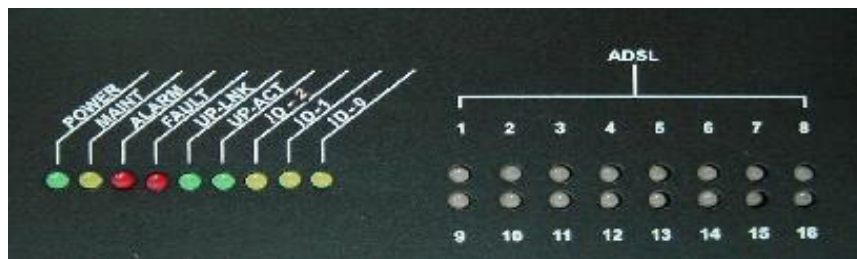


Figure 1-3 ADSL IP DSLAM LED Identification

ADSL IP DSLAM

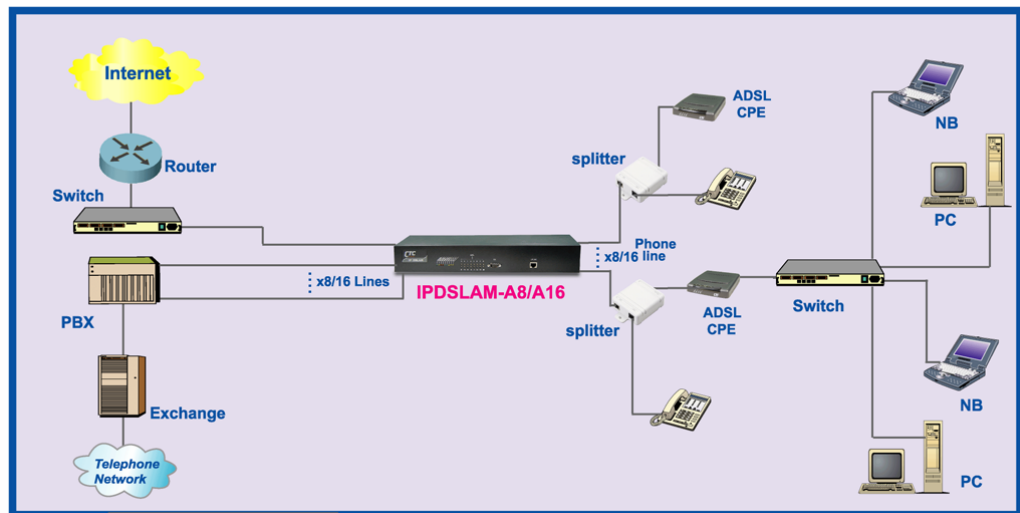
Table 1-1 ADSL IP DSLAM LED Description

<LED ID>	Color	Description
Power	Green	Lit when power on
Maint	Green	Lit when maintance commands were issued
Alarm	Green	Lit when MJ/MN events happen
Faultt	Green	Lit when system error is detected
Link	Green	Lit when Uplink Ethernet interface was connected
Act	Green	Blink when information is transmitted through uplink Ethernet interface
ID-0 & ID-1 & ID-2	Green	ID0, ID1, ID2 : off off off -----when power on
ADSL1 – ADSL16	Green/ Blinking Orange/ No light/ Red	Lit Solid Green when ADSL link is in active state; Lit Blinking Orange when the specified ADSL link is in connection training state; LED off when ADSL link is not in service Lit Solid Red when loss of signal occurs

Note: Do not power off your ADSL IP DSLAM when LEDs “MAINT”, “ALARM” and “FAULT” are blinking simultaneously.

1.3 ADSL IP DSLAM Application

As the following figure shown, ADSL IP DSLAM consists of two network modules. Each network module provides eight ADSL ports with built-in POTS splitters so that it provides broadband data service over existing copper wires without affecting the conventional voice service. ADSL IP DSLAM, therefore, is a perfect solution for both central office co-location and MTU/MHU markets.



1.4 ADSL IP DSLAM Features

VLAN support

The ADSL IP DSLAM supports mapping of Ethernet-VLAN to ATM-PVC feature for security concern.

Compact design for limited space

The ADSL IP DSLAM occupies 1.5 U of standard Telco rack space. Its compactness is perfect for collocation and basement installation. With the built-in POTS splitters, service providers even no need to allocate extra space for POTS splitter shelves.

Standalone System Design

For the area of less than 16 subscribers, network designer can use ADSL IP DSLAM to provide service directly.

1.5 ADSL IP DSLAM Specifications

General	<ul style="list-style-type: none"> • Upstream: 32~1024 Kbps • Downstream: 32~8 Mbps • Distance: Up to 5km @26 AWG
Interface	<ul style="list-style-type: none"> • 16 ports ADSL • ADSL module: 2 module, each support 8 ADSL links with build-in splitter • Connector: <ul style="list-style-type: none"> Rear: Telco-50 pin centronic connector for line. Front: RJ-45, uplink 10/100 BaseTX Ethernet
Standard	<ul style="list-style-type: none"> • ADSL <ul style="list-style-type: none"> ANSI T1.413 Issue II G.992.1(G.dmt) • IEEE Standard <ul style="list-style-type: none"> IEEE 802.3/3u/3x IEEE 802.1q
Management	<ul style="list-style-type: none"> • Local Console • Web-based GUI • Support SNMP v1&v2 • Telnet • Fault, performance, configuration and security management provided
Security	<ul style="list-style-type: none"> • Support differentiation of user's privilege • Secured hosts for Telnet/TFTP/ SNMP
MIB	<ul style="list-style-type: none"> • RFC 1213 MIB II • RFC 2662 ADSL Line MIB • C-COM proprietary MIB
Physical Condition	<ul style="list-style-type: none"> • Dimension: 429mm(w)x300mm(D)x66mm(H) • Weight: 11lb
Environment	<ul style="list-style-type: none"> • Operating Temperature: 0°C~+50°C • Storage Temperature: -30°C~+70°C • Operating Relative Humidity: (Non-Condensing): 0%~90% • Storage Relative Humidity: (Non-Condensing): 0%~95%
Electrical	<ul style="list-style-type: none"> • Support Voltage/Current: -42V ~ -56V DC or 90V~240V AC, • 50~60HZ, 70 watts max

Getting Started

2

2.1 General

This chapter provides the installation instruction for the hardware installation and system configuration of your ADSL IP DSLAM so that you can start up quickly. It includes the following sections:

- **Unpacking your ADSL IP DSLAM**

This section describes how to unpacking your ADSL IP DSLAM, and part number explanation.

- **Hardware Installation**

This section describes the power connection, loop connection and CID connection.

- **Ways of management connection**

This section describes how to engage in management connection by EmWeb, CLI and Telnet.

2.2 Unpacking your ADSL IP DSLAM

This section describes how to unpack your ADSL IP DSLAM. For a box of ADSL IP DSLAM, there may contain the following materials:

1. ADSL IP DSLAM
 2. Mounting bracket package
 3. RJ-45 Ethernet cable
 4. Power cord (AC power module only)
 5. RS 232 cable to facilitate the connection between CID and PC
 6. CD including user manual and Quick Start Guide
 7. A copy of Quick Start Guide
 8. Accessory package
- Any other accessories requested at time of ordering.

Check the contents of the package and inspect the unit for any signs of damage. Report any defects to vendor's customer service representative. Retain all packing materials for future shipment.

2.3 Hardware Installation

- The ADSL IP DSLAM can be installed in a standard 19-inch rack, by using the mounting brackets provided.
- Mount the shelf on the rack using the large screws provided.
- Follows the following procedures to connect and wire the system.

Safety Instruction

The following is the safety instructions for ADSL IP DSLAM before installation:

1. Read and follows all warning notices and instructions of this user manual.
2. The maximum recommended operating temperature for the ADSL IP DSLAM is 50°C. Care must be taken to allow sufficient air circulation or space between units when the ADSL IP DSLAM is installed inside a closed rack assembly and racks should safely support the combined weight of all ADSL IP DSLAM.
3. The connections and equipment that supply power to the ADSL IP DSLAM should be capable of operating safely with the maximum power requirements of the ADSL IP DSLAM. In the event of a power overload, the supply circuits and supply wiring should not become hazardous.
4. The AC adapter must plug in to the right supply voltage. Make sure that the supplied AC voltage is correct and stable. If the input AC voltage is over 10% lower than the standard may cause the ADSL IP DSLAM to malfunction.
5. Do not allow anything to rest on the power cord of the AC adapter, and do not locate the product where anyone can walk on the power cord.
6. Generally, when installed after the final configuration, the product must comply with the applicable safety standards and regulatory requirements of the country in which it is installed. If necessary, consult for technical support.
7. A rare condition can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate building are interconnected, the voltage potential can cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action before interconnecting the products. If the equipment is to be used with telecommunications circuit, take the following precautions:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet location unless the jack is specially designed for wet location.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines (other than a cordless telephone) during an electrical storm. There is a remote risk of electric shock from lightning.
- Do not use a telephone or other equipment connected to telephone lines to report a gas leak in the vicinity of the leak.

ADSL IP DSLAM Rear Panel Connection

The following figure shows the rear panel connection of ADSL IP DSLAM:

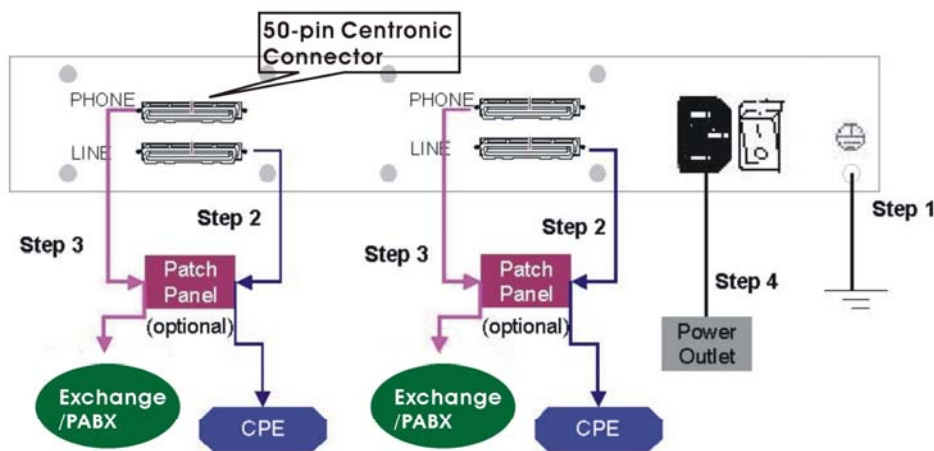


Figure 2-1 ADSL IP DSLAM Rear Panel Connection

Step 1: Ground the ADSL IP DSLAM by connecting a grounded wire

Step 2: Connect the ADSL line connector, a 50-pin centronic connector, of ADSL IP DSLAM to CPE by using telco cable. Each line connector supports 8 ports of ADSL for Data path from MDF(Main Distribution Frame).

Step 3: Connect the phone connector, a 50-pin centronic connector, of ADSL IP DSLAM to Exchange/PBX by using telco cable. phone connector is an optional module supporting Voice path to Exchange/PBX; it must be along with Line Connector.

Step 4: Connect the power adapter and plug it into an outlet.

ADSL IP DSLAM Front Panel Connection

Connect the uplink port of ADSL IP DSLAM to internet by using the RJ-45 cable, and Connect the CID port to the console terminal by using the RS-232 cable(Null modem cable) in order to Administer your ADSL IP DSLAM through CLI.

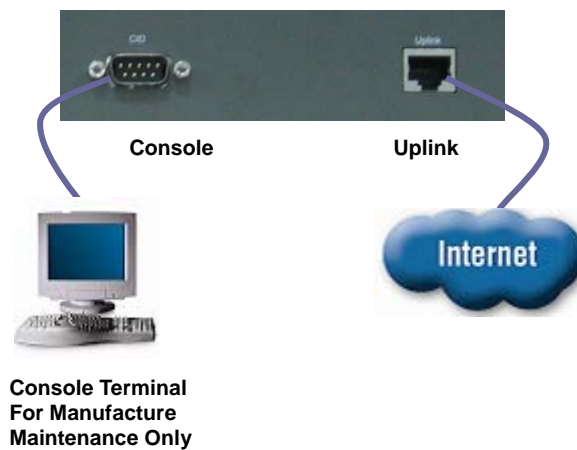


Figure 2-2 ADSL IP DSLAM Front Panel Connections

Note: Please refer to Appendix A: pin assignment of telco cable, RJ-45 and RS-232 cable.

2.4 Ways of Management Connection

This section will tell you how to connect and manage your ADSL IP DSLAM through EmWeb, CLI and EMS.

Embedded Web Interface(EmWeb)

The embedded Web Interface (EmWeb), comprised of HTML files, is more user- friendly than CLI for your configuring ADSL IP DSLAM. The HTML files embedded in ADSL IP DSLAM are dynamically linked to the system's functional command sets. You can access the EmWeb from any Web Browser.

Following the following procedure to connect the embedded Web management interface:

1. Establish a connection to the internet
2. Open the Web browser
3. Enter the IP address of the ADSL IP DSLAM (Default IP: 192.168.100.111)
4. Log in as usual. (User account: **Admin**; Password: **Admin**)

To access any menu item on EmWeb, simply click on the item you want. The corresponding work screen will then appear on the right side frame. By pressing the **Apply** button will allow you to achieve your configuration, whereas pressing **Cancel** button will clear all your changes without applying them. In some menus, there will be **Modify** item will allow you to modify the existing configuration.

Command Line Interface (CLI)

The Command Line Interface is the most primary character based configuration interface. Some of configurations not provided in EmWeb can be configured through CLI. You can access CLI from the terminal emulation software.

The procedure of connecting to the CLI is as follows:

1. Start up the terminal emulation software on the management station.

If necessary, reconfigure the terminal-emulation software to match the

switch console port settings.

Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

2. Enter **Admin** when prompted for a user name and password. The ADSL IP DSLAM prompt appears when you have logged in to the management interface successfully.

Telnet Client

ADSL IP DSLAM supports only one Telnet client that you can use to connect with. Telnet provides a simple terminal emulation that allows you to see and interact with the CLI of ADSL IP DSLAM. As with any remote connection, the network interface IP address for the ADSL IP DSLAM must be established.

Note: as to the default setting of ADSL IP DSLAM, please refer to the Appendix-C.

System Administration with EmWeb

3

This chapter provides all the instruction and procedure necessary for you to administer your ADSL IP DSLAM with EmWeb interface.

3.1 Log In with Embedded Web Interface

This section describes how to log into Embedded Web Interface.

Open a web browser with the default IP address: <http://192.168.100.111>

The log in screen appears as follows:



1. Enter your user name. If it is an initial installation, enter **Admin** for user name.
2. Enter your password. If it is an initial installation, enter **Admin** for password.

Note: For safety concern, it is recommended to change the password. For changing the password, go to the **Changing Password** in the **System** menu. See page 30.

3.2 Embedded Web Interface Menu

This section describes the overview of the embedded Web interface menu, EmWeb. After your successfully logging into the EmWeb, the screen will appears as follows:



Default Setting

Display the information of default (factory) setting of your ADSL IP DSLAM. See page 23.

System Information

Display the system time, system up time, system up period of your ADSL IP DSLAM. It also provides you with the information of software version, hardware version. See page 24.

Save to Flash

Allow you to save your configuration in Flash. See page 25.

Current Event

Allow you to view the alarm and event status of your ADSL IP DSLAM. See page 26.

System

Set Port Filter: Allow you configure the port filtering function. See page 28.

System IP / Location: Allow you to configure the IP address and location of your ADSL IP DSLAM. See page 29.

System Date and Time: Allow you to configure the SNTP status, Time zone, date and time of your ADSL IP DSLAM. See page 30.

Changing Password: Allow you to change your password. See page 30.

DSL Profile Configuration

Create Line Profile: Allow you to create ADSL line profile. See page 31.

Create Alarm Profile: Allow you to create ADSL alarm profile. See page 31.

Current Line Profile: Allow you to view, modify, or delete existing ADSL line profiles. See page 33.

Current Alarm Profile: Allow you to view, modify, or delete existing ADSL alarm profiles. See page 34.

Port Configuration

DSL Port configuration: Allow you to display, modify and delete the status of the port. It provides the configuration of a port's status. See page 35.

PVC Configuration: Allow you to configure PVC and VID on a port and set the priority. It also provides the modification and delete function. See page 36.

List of Subscriber: Allow you to view the existing information of subscribers and modify them. See page 38.

Routing Table: allow you to configure the routing table. See page 39.

Management

SNMP: Allow you to configure SNMP access parameters and trap IPs. See page 41.

Management IP: Allow you to configure the management IPs so that only with those configured management IPs can access to your ADSL IP DSLAM remotely. See page 41.

DSL Port Performance

Physical Layer Info: Allow you to view the performance information on physical layer by specifying the definite unit. See page 42.

Channel Layer Info: Allow you to view the performance information on channel layer by specifying the definite unit. See page 43.

Current Phy-Layer PM: Allow you to view the physical layer performance collected within current 15 minutes and a day duration. See page 44.

Current Channel-Layer PM: Allow you to view the channel layer

performance collected within current 15 minutes and a day duration. See *page 46*.

15 MIN Phy-Layer PM: Allow you to view the physical layer performance during previous 15 minutes interval. See *page 47*.

1 DAY Phy-Layer PM: Allow you to view the physical layer performance during previous 1 day interval. See *page 48*.

15 MIN Channel-Layer PM: Allow you to view the channel layer performance during previous 15 minutes interval. See *page 49*.

1 DAY Channel-Layer PM: Allow you to view the channel layer performance during previous 1 day interval. See *page 50*.

Miscellanea

IGMP Snooping Config: Allow you to configure the IGMP Snooping. See *page 51*.

IGMP Snooping Status: allow you to view IGMP snooping status. See *page 51*.

3.3 Default (Factory) Configuration Settings {Default Setting}

This section describes how to get the information of the default setting of your ADSL IP DSLAM.

1. Click on “**Default Setting**” from the ADSL IP DSLAM Main Menu.

The **Default Setting** screen appears as follows:

Default Settings	
SNMP:	community : “public” no In-band management channel
IP	IP : 192.168.100.111 Mask: 255.255.255.0 Gateway: 192.168.100.1
System	Bridge – mode Port-Filter(Port-based VLAN) : Enable
ADSL Port	“up” for all ports
VCC connection	8/81(vpi/vci) for all ports VLAN – tag : disable
DSL profile	named “DEFAULT” 1) tx mode : “adaptAtStartup” 2) Line type : “Interleaved” 3) Target SNR margin : “6 dB” 4) mim tx rate : “32 Kbps” 5) max tx rate at ATU-C : “8064 Kbps” 6) max tx rate at ATU-R : “1024 Kbps”. 7) interleave delay : “16 milliseconds”
Alarm profile	named “DEFAULT” ATU-C side: Thresh15MinLofs – 0 sec Thresh15MinLoss – 0 sec Thresh15MinLols – 0 sec Thresh15MinLprs – 0 sec Thresh15MinEss – 0 sec initial failure trap – Enable ATU-R side : Thresh15MinLofs – 0 sec Thresh15MinLoss – 0 sec Thresh15MinLols – 0 sec Thresh15MinLprs – 0 sec

In the default setting table, the status of SNMP, IP, System, ADSL Port, VCC connection, DSL profile and Alarm profile are displayed clearly. How to modify them will be introduced in the following sections.

3.4 Displaying the System Information of your ADSL IP DSLAM {System Information}

This section describes how to get the information of your ADSL IP DSLAM.

1. Click on “**System Information**” from the ADSL IP DSLAM Main Menu.

The **System Information** screen appears as follows:

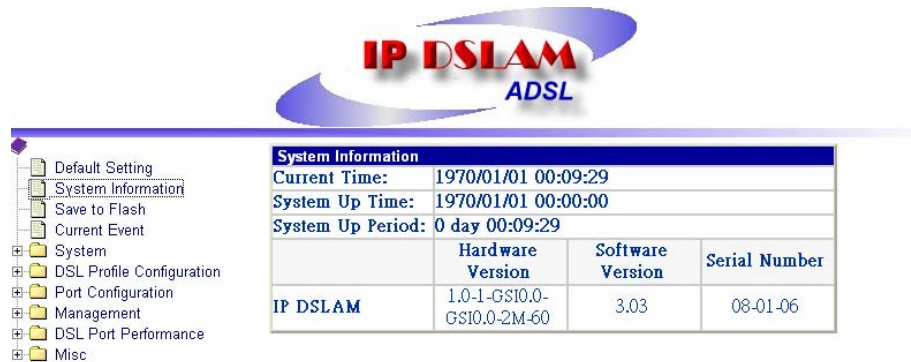


Table 3-1 Sysinfo field definition

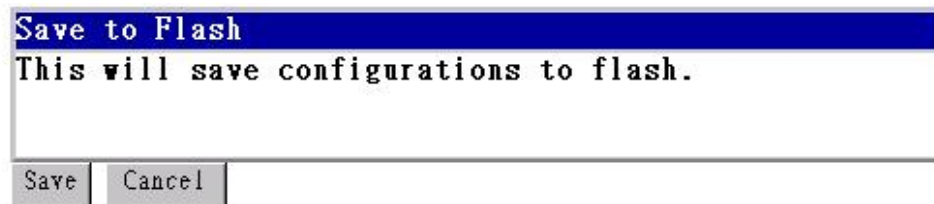
Field	Definition
Current time	Current system time
System Up time	System up time
System Up Period	System Up Period
Model name	Model name of the system.
Hardware version	Hardware version of system.
Software version	Software version of system.
MAC Address	MAC Address of system

3.5 Save your Configuration to Flash {Save to Flash}

This section describes how to save the configuration you have configured to flash. This function will be needed whenever you want to restart your ADSL IP DSLAM with the updated configuration.

1. Click on “**Save to Flash**” from the ADSL IP DSLAM Main Menu.

The **Save to Flash** screen appears as follows:



2. Submit the **Save** button.
3. After submitting the Save button, a warning message from Web Server will pop-up immediately as the following screen shown.

Message From Web Server

Warning: Don't cut off power! Cutting off power will cause flash to crash while system is saving configuration.

Saving configuration.....

Note: don't cut off power while system is saving your configuration.

3.6 Displaying Current Event {Current Event}

This section describes how to view the current alarm and event status.

1. Click on “**Current Event**” from the ADSL IP DSLAM Main Menu. The **Current Event** screen appears as follows:

NO	Date	Time	Source {System / Unit no. / (unit no./port no.)}	Severity {Major/Minor/Inform}	Event Description
1	2003/11/13	15:28:59	system	inform	user admin logout
2	2003/11/13	15:18:58	system	inform	user admin login
3	2003/11/13	14:06:41	system	inform	user admin logout
4	2003/11/13	13:56:43	p-1 atu-r	inform	port up
5	2003/11/13	13:56:43	p-1 atu-r	inform	loss of signal (off)
6	2003/11/13	13:56:43	p-1 atu-c	inform	port up
7	2003/11/13	13:56:43	p-1 atu-c	inform	loss of signal (off)
8	2003/11/13	13:56:25	system	inform	user admin login
9	2003/11/13	13:56:17	p-16 atu-r	major	loss of signal
10	2003/11/13	13:56:17	p-16 atu-c	major	loss of signal
11	2003/11/13	13:56:17	p-15 atu-r	major	loss of signal
12	2003/11/13	13:56:17	p-15 atu-c	major	loss of signal
13	2003/11/13	13:56:17	p-14 atu-r	major	loss of signal
14	2003/11/13	13:56:17	p-14 atu-c	major	loss of signal
15	2003/11/13	13:56:17	p-13 atu-r	major	loss of signal
16	2003/11/13	13:56:17	p-13 atu-c	major	loss of signal
17	2003/11/13	13:56:17	p-12 atu-r	major	loss of signal
18	2003/11/13	13:56:17	p-12 atu-c	major	loss of signal
19	2003/11/13	13:56:17	p-11 atu-r	major	loss of signal
20	2003/11/13	13:56:17	p-11 atu-c	major	loss of signal

DELETE ALL

2. Click on **next page** item in order to view more events. The displayed data will be 20 items per page and it can display totally up to 960 items.
3. Click on **DELETE ALL** button in order to delete all events. The following event log description would help you to know the content of event logs in the **Current Event** screen.

Table 3-2 Event log description

Module	Severity	Description	Note
ADSL related	Inform	port up	
	Major	port down	
	Inform	transmit rate has changed	
	Major	loss of framing	
	Major	loss of signal	
	Major	loss of power	
	Minor	loss of signal quality	
	Major	loss of link	
	Major	data init. failure	ATU-C failure during initialization due to bit errors corrupting startup exchange data.

ADSL IP DSLAM

	Major	configuration init. failure	ATU-C failure during initialization due to peer ATU not able to support requested configuration
	Major	protocol init. failure	Incompatible protocol used by the peer ATU
	Major	no peer ATU present	No activation sequence detected from paired endpoint.
	Minor	los	Threshold violation
	Minor	lof	
	Minor	lpr	
	Minor	es	
	Minor	lol	
System related	Inform	system up	
	Inform	user "xxx" login	
	Inform	user "xxx" logout	
	Inform	no defect	
	Major	hardware failure	
	Inform	up-link connected	
	Inform	up-link disconnected	
Unit related	Inform	unit plugged	
	Inform	unit unplugged	
	Inform	no defect	
	Major	hardware failure	
Admin related	Inform	port Admin. Enabled	
	Major	port Admin. disabled	

3.7 Configuring ADSL IP DSLAM

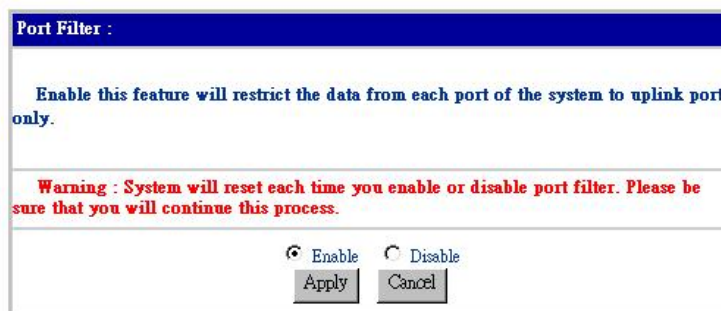
This section describes how to configure your ADSL IP DSLAM by selecting **System** from EmWeb Menu. This section will cover all the function from **System** Menu. It includes:

Configuring Port Filtering {Set Port Filter}

Allow you to configure the port filtering function.

1. Click on “**Set Port Filter**” from the System Menu.

The **Set Port Filter** screen appears as follows:



Port Filter :

Enable this feature will restrict the data from each port of the system to uplink port only.

Warning : System will reset each time you enable or disable port filter. Please be sure that you will continue this process.

☒ Enable ☐ Disable

Apply Cancel

2. Click on **Enabled** button to allow each ADSL port to communicate back and forth with the uplink Ethernet port only.

By selecting **Disabled** button you allow all ADSL ports to communicate with each other and also with the uplink Ethernet port.

3. Press **Apply** button in order to submit your configuration.

Note: Make sure to save all the configurations in flash by selecting **Save to Flash** from main menu when you want to restart your ADSL IP DSLAM.

Configuring IP and Location {*System IP / Location*}

Allow you to configure the system IP address and location.

1. Click on “**System IP / Location**” from the System Menu.

The **System IP / Location** screen appears with the default setting and can be configured as follows:

IP / System Information Settings		
IP Address :	192.168.0.76	(format) (***.***.***.***)
Subnet Mask :	255.255.255.0	(format) (***.***.***.***)
Gateway:	192.168.0.1	(format) (***.***.***.***)
System Name:	IP DSLAM	
Location:	Main Building	
Contact:	account@money.com	

Note: If you changed the Web Server's IP address, then After you press the "Apply" button,
you must change the HTTP URL Address on your web browser . (and may need to re-configure the
TCP/IP setting of the network)

Apply	Cancel
-------	--------

2. Configure the IP address you want to set, say 192.168.0.76
3. Configure the subnet mask with reference to IP address, say 255.255.255.0
4. Configure the gateway with reference to IP address, say 192.168.0.1
5. Configure the system name you want to set, say ADSL IP DSLAM
6. Configure the location of your ADSL IP DSLAM.
7. Configure the contact information for servicing ADSL IP DSLAM.
8. Click on the **Apply** button to submit your changes, or click on the **Cancel** button if you want to clear all the values you have configured.

Note: If you changed the Web Server's IP address, you must change the HTTP URL Address on your web browser, after your pressing the "Apply" button, (The TCP/IP setting of the network may need to re-configure).

Configuring Date and Time {*System Date and Time*}

Allow you to configure the date and time of the system.

1. Click on “**System Date and Time**” from the System Menu.

The **System Date and Time** screen appears with the default setting and can be configured as follows:

System Date and Time Settings		
Year:	<input type="text" value="2001"/>	(1970~2050)
Month:	<input type="text" value="01"/>	(1~12)
Day:	<input type="text" value="01"/>	(1~31)
Hour:	<input type="text" value="01"/>	(0~23)
Minute:	<input type="text" value="01"/>	(0~59)
Second:	<input type="text" value="01"/>	(0~59)
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>		

Changing your Password {*Changing Password*}

Allow you to change your password.

1. Click on “**Changing Password**” from the System Menu.

The **Changing Password** screen appears with your user name and your password can be changed as follows:

Changing Password	
User Name :	<input type="text" value="admin"/>
Old Password :	<input type="password" value="*****"/>
New Password :	<input type="password" value="*****"/>
Confirm New Password:	<input type="password" value="*****"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

2. Enter your old password.
3. Enter your new password that you want to change.
4. Enter your new password again to confirm.
5. Click on the **Apply** button to submit your changes, or click on the **Cancel** button if you want to clear all the values you have configured.

3.8 DSL Line Configuration

This section covers how to create, display, modify, or delete the line profile and alarm profile by selecting **DSL Line Configuration** from EmWeb Menu. This section will cover all the function from **DSL Line Configuration** Menu.

Creating a Line Profile {Create Line Profile}

This section describes how to create an ADSL line profile.

1. Click on “Create Line Profile” of DSL Profile configuration Menu.

The **Create Line Profile** screen appears as follows:

DSL Line Profile Name:

CO (Down Stream)

Line Type: ☐ Fast ☒ Interleave Transmit Rate Adaptation: ☐ Fixed ☒ AdaptAtStartup

Target Snr Margin(db): (2~15)

Minimum Transmit Rate(32x Kbps): (32~8064)

Maximum Transmit Rate(32x Kbps): (32~8064) (disabled on Fixed mode)

Interleave Delay(milli-seconds): (disabled on Fast mode)

RT (Up Stream)

Line Type: ☐ Fast ☒ Interleave Transmit Rate Adaptation: ☐ Fixed ☒ AdaptAtStartup

Target Snr Margin(db): (2~15)

Minimum Transmit Rate(32x Kbps): (32~1024)

Maximum Transmit Rate(32x Kbps): (32~1024) (disabled on Fixed mode)

Interleave Delay(milli-seconds): (disabled on Fast mode)

Table 3-3 Create Line Profile Field Definitions

Field	Definition
Line Type	The ADSL line type, Fast or Interleaved
Transmit Rate Adaption	Defines what form of transmitting rate to be adaptated, fixed or adaptAtStartup
Target Snr Margin (db)	Target Signal / Noise Margin.
Minimum Transmit Rate	The minimum transmitting rate of ATU-C side or ATU-R side.
Maximum Transmit Rate	The maximum transmitting rate of ATU-C side or ATU-R side.
Interleave Delay (mili-seconds)	The value of Interleave Delay for this channel.

2. Configure the name of line profile, say service512K64K.
3. Configure the line profile on CO side (Down Stream). For example,
4. Configure the line type, transmit rate adaptation, target SNR margin, minimum transmit rate, maximum transmit rate, and interleave delay as

Interleaved, AdaptAtStartup, 7 db, 32 Kbps, 512 Kbps, and 8 milli-seconds.

5. Configure the line profile on RT side (Up Stream). For example,
6. Configure the line type, transmit rate adaptation, target SNR margin, minimum transmit rate, maximum transmit rate, and interleave delay as Interleaved, AdaptAtStartup, 7 db, 32 Kbps, 64 Kbps, and 8 milliseconds.
7. Click on the Apply button to submit your changes, or click on the Cancel button if you want to clear all the values you have configured.

Note: (1) If you configure “Transmit Rate Adaptation” as “Fixed”, it is recommended to configure the value of “minimum transmit rate” and “maximum transmit rate” on CO side or RT side the same. However, the value of CO side and RT side may not be the same.

(2) Line profile can be created maximum up to 10 profiles.

Creating a Alarm Profile {Create Alarm Profile}

This section describes how to create an ADSL alarm profile.

1. Click on “**Create Alarm Profile**” of DSL Profile configuration Menu.

The **Create Alarm Profile** screen appears as follows:

Table 3-4 Create Alarm Profile Field Definitions

Field	Definition
Loss of frame within 15 minutes	The threshold of the number of “Loss of Frame Seconds” within 15 minutes performance data collection period.
Loss of signal within 15 minutes	The threshold of the number of “Loss of Signal Seconds” within 15 minutes performance data collection period.
Loss of link within 15 minutes	The threshold of the number of “Loss of Link Seconds” within 15 minutes performance data collection period. (But only ATU-C side)
Loss of power within	The threshold of the number of “Loss of Power

15 minutes	Seconds" within 15 minutes performance data collection period.
Errored seconds	The threshold of the number of "Errored Seconds" within 15 minutes performance data collection period.
Failure Trap	Enable or disable the Initial Failure Trap. Default setting is disable. (Only on ATU-C side)

2. Configure the name of alarm profile, say *alarm1*.
3. Configure the alarm profile on CO side (Down Stream). For example,
4. Configure the Lofs, Loss, Lols, Lprs, Ess, and initial failure trap as 30sec, 10sec, 50sec, 5sec, 4sec, and *Enable* initial failure trap.
5. Configure the alarm profile on RT side (Up Stream). For example, Configure the Lofs, Loss, Lprs, and Ess as 30sec, 2sec, 2sec, and 5sec.
6. Click on the **Apply** button to submit your changes, or click on the **Cancel** button if you want to clear all the values you have configured.

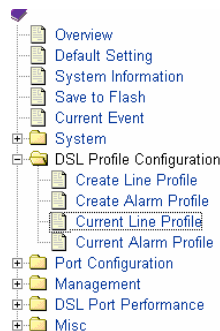
Note: The alarm profile can be created maximum up to 10 profiles.

Displaying and Modifying a Line Profile {Current Line Profile}

Allow you to view, modify, or delete existing ADSL line profiles.

1. Click on "**Current Line Profile**" of the DSL Profile configuration Menu.

The **Current Line Profile** screen appears as follows:



Profile Name	CO /RT	Line Type	Transmit Rate Adaptation	Target Snr Margin (db)	Minimum Transmit Rate (Kbps)	Maximum Transmit Rate(Kbps)	Interleave Delay (milli-seconds)	Action
DEFAULT	CO	Interleaved	AdaptAtStartup	6.0	32	8064	16	
	RT	Interleaved	AdaptAtStartup	6.0	32	1024	16	
SERVICE512K64K	CO	Interleaved	AdaptAtStartup	7.0	32	512	8	Modify
	RT	Interleaved	AdaptAtStartup	7.0	32	64	8	Delete

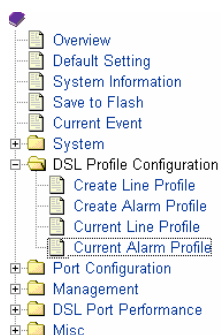
2. Click on **Modify** button to modify the specified profile.
3. Click on **Delete** button to delete the specified profile.

Displaying and Modifying a Alarm Profile {Current Alarm Profile}

Allow you to view, modify, or delete existing ADSL alarm profiles.

1. Click on “**Current Alarm Profile**” of the DSL Profile configuration Menu.

The **Current Alarm Profile** screen appears as follows:



Profile Name	CO /RT	Loss of frame within 15 minutes	Loss of signal within 15 minutes	Loss of link within 15 minutes	Loss of power within 15 minutes	Errored seconds	Failure Trap	Action
DEFAULT	CO	0	0	0	0	0	disable	
	RT	0	0	-	0	0	-	
ALARM1	CO	30	10	50	5	4	enable	Modify
	RT	30	2	-	2	5	-	Delete

2. Click on **Modify** button to modify the specified profile.
3. Click on **Delete** button to delete the specified profile.

3.9 Port Configuration

This section covers how to configure ports and subscriber information by selecting **Port Configuration** from EmWeb Menu. This chapter will cover all the function from **Port Configuration** Menu.

DSL Port Configuration{DSL Port Configuration}

Allow you to display, modify and delete the status of the port. It also provides the configuration of enabling or disabling a port and attaching the specific line profile and alarm profile to a port. The procedures are as follows:

1. Click on “**DSL Port Configuration**” of the Port configuration Menu.

For first time configuration, the **DSL Port Configuration** screen appears with the default setting as follows:

Port Settings:

Unit No

Unit No.	Port No.	Admin Status	Line Profile Name	Alarm Profile Name	Operating Status	Alarm Status	Trap	Action
1	1	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	2	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	3	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	4	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	5	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	6	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	7	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	8	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	9	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	10	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	11	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	12	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	13	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	14	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	15	up	DEFAULT	DEFAULT	down	LOS	enable	Modify
1	16	up	DEFAULT	DEFAULT	down	LOS	enable	Modify

2. Click on **Modify** button to configure the specific port, says port 1. The screen will appear as follows:

Port Configuration

Unit Number:

Port Number:

Admin Status: ☒ Up ☐ Down

Attachment of Line Profile:

Attachment of Alarm Profile:

3. Configure the Administration status as “Up” or “Down”. Here in example, “Up” is configured.
4. Attach the line profile, says “SERVICE512K64K”

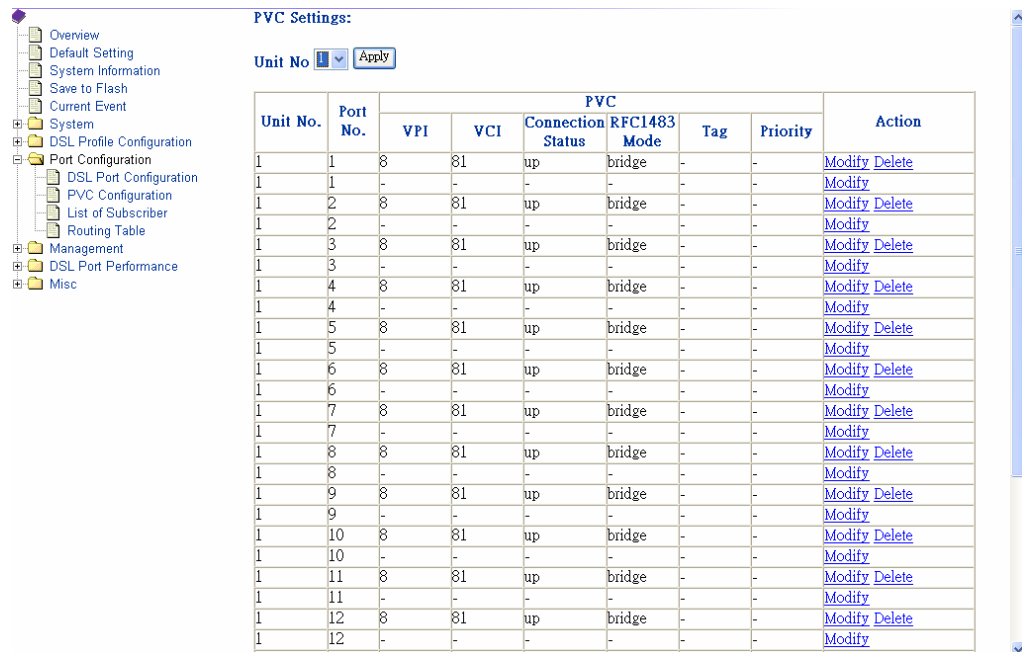
5. Attach the alarm profile, says “ALARM1”
6. Click on the **Apply** button to submit your changes, or click on the **Cancel** button if you want to clear all the values you have configured.

PVC Configuration{PVC Configuration}

Allow you to configure PVC (Permanent Virtual Connection) and VID (VLAN ID) on a port and setting the priority. It also provides the modification and delete function. The procedures are as follows:

1. Click on “**PVC Configuration**” of the Port configuration Menu.

For the first time configuration, the **PVC Configuration** screen appears with the default setting as follows:



The screenshot shows the 'PVC Settings' window. On the left is a sidebar menu with options like Overview, Default Setting, System Information, Save to Flash, Current Event, System, DSL Profile Configuration, Port Configuration (selected), DSL Port Configuration, PVC Configuration (selected), List of Subscriber, Routing Table, Management, DSL Port Performance, and Misc. The main area is titled 'PVC Settings:' and contains a 'Unit No.' dropdown and an 'Apply' button. Below this is a table with columns: Unit No., Port No., VPI, VCI, Connection Status, RFC1483 Mode, Tag, Priority, and Action. The table lists 24 rows of configuration data for Unit No. 1.

Unit No.	Port No.	VPI	VCI	Connection Status	RFC1483 Mode	Tag	Priority	Action
1	1	8	81	up	bridge	-	-	Modify Delete
1	1	-	-	-	-	-	-	Modify
1	2	8	81	up	bridge	-	-	Modify Delete
1	2	-	-	-	-	-	-	Modify
1	3	8	81	up	bridge	-	-	Modify Delete
1	3	-	-	-	-	-	-	Modify
1	4	8	81	up	bridge	-	-	Modify Delete
1	4	-	-	-	-	-	-	Modify
1	5	8	81	up	bridge	-	-	Modify Delete
1	5	-	-	-	-	-	-	Modify
1	6	8	81	up	bridge	-	-	Modify Delete
1	6	-	-	-	-	-	-	Modify
1	7	8	81	up	bridge	-	-	Modify Delete
1	7	-	-	-	-	-	-	Modify
1	8	8	81	up	bridge	-	-	Modify Delete
1	8	-	-	-	-	-	-	Modify
1	9	8	81	up	bridge	-	-	Modify Delete
1	9	-	-	-	-	-	-	Modify
1	10	8	81	up	bridge	-	-	Modify Delete
1	10	-	-	-	-	-	-	Modify
1	11	8	81	up	bridge	-	-	Modify Delete
1	11	-	-	-	-	-	-	Modify
1	12	8	81	up	bridge	-	-	Modify Delete
1	12	-	-	-	-	-	-	Modify

Table 3-5 PVC Configuration Field Definitions

Field	Definition
Port No.	The threshold of the number of “Loss of Signal Seconds” within 15 minutes performance data collection period.
VPI	Virtual Path Identifier
VCI	Virtual Channel Identifier
Connection Status	Used to up/down connection.
RFC1483 Mode	Bridge or route
Tag	Specifies the port as either 802.1Q tagging or 802.1Q untagged.
Priority	Optional Connection priority. No VLAN tag, no priority.

2. Click on **Modify** button to configure the specific port, says port1. The screen will appear as follows:

PVC Configuration	
Unit Number:	1
Port Number:	1
VPI: (0~4095)	0
VCI: (1~65535)	50
Admin Status:	<input checked="" type="radio"/> UP <input type="radio"/> Down
RFC1483 Mode:	<input checked="" type="radio"/> Bridge <input type="radio"/> Route
Tag(optional): (2~4094; Tag can't overlap with existing Tags. 0 means no Tag.)	0
Priority(optional): (0~7)	7
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

3. Configure the VPI, says 0
4. Configure the VCI, says 50
5. Configure the Administration status of PVC “Up” or “Down”, says “Up”.
6. Configure the RFX1483 Mode. Here in example, “Bridge” is configured.
7. Configure the Tag, says 7.
8. Configure the priority of PVC, says 7. The priority of 0 to 7 is from the lowest to the highest.
9. Click on the **Apply** button to submit your changes, or click on the **Cancel** button. If you want to clear all the values you have configured.

List of Subscriber {List of Subscriber}

Allow you to view the existing information of subscribers and modify them. The procedures are as follows:

1. Click on “**List of Subscriber**” of the Port configuration Menu.

For the first time configuration, the **List of Subscriber** screen appears with the default setting as follows:

Subscriber Settings:

Unit No.

Unit No.	Port No.	Subscriber Name	Telephone No.	Note	Action
1	1				Modify Delete
1	2				Modify Delete
1	3				Modify Delete
1	4				Modify Delete
1	5				Modify Delete
1	6				Modify Delete
1	7				Modify Delete
1	8				Modify Delete
1	9				Modify Delete
1	10				Modify Delete
1	11				Modify Delete
1	12				Modify Delete
1	13				Modify Delete

2. Click on **Modify** button to configure the specific port, says port1. The screen will appear as follows:

Subscriber Setting

Unit Number:

Port Number:

Subscriber Name:

Telephone Number:

Note:

3. Configure the subscriber name as you want, says Pantagon.
4. Configure the telephone number of subscriber, says 42361258
5. Write Note for your reference if you need.
6. Click on the **Apply** button to submit your changes, or click on the **Cancel** button if you want to clear all the values you have configured.

Routing Table {Routing Table}

Routing Table is a matrix with a network control protocol, which gives the hierarchy of link routing at each node.

The Routing Table screen allows you to view the routing table built in the ADSL IP DSLAM and modify them. The procedures are as follows:

1. Click on “**List of Subscriber**” of the Port configuration Menu. The **Routing Table** screen appears with the default setting as follows:

Unit No.	Port No. (1~16)	Name	Destination	Subnetmask
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Unit No.	Port No.	Name	Destination	Subnet Mask	Action
1	1	apple	192.168.100.0	255.255.255.0	Delete
1	3	banana	192.168.100.35	255.255.255.255	Delete
1	12	grape	192.168.100.36	255.255.255.255	Delete

2. Configure the Port No. (1~16), Name, Destinations and Subnet mask separately, and then click on the **Apply** button.
3. The newly added routing node will be listed in the routing table. If to delete one routing node, click on the **Delete**.

Note: only can the routing table be configurable, when the RFC-1483 mode is configured as “Route”. Please refer to the setting in the PVC Configuration, page 36.

3.10 Management Configuration

This section covers how to configure SNMP access parameters and management IP by selecting **Management** from EmWeb Menu. This section will cover all the function from **Management** Menu. It includes:

Configuring SNMP Access Parameters and Trap IPs {SNMP}

Allow you to configure the SNMP access parameters and trap IPs. The procedures are as follows:

1. Click on “**SNMP**” of the Management Menu.

For the first time configuration, the **SNMP** screen appears with the default setting of the community string “public” as follows:

Current SNMP Settings		
Read / Write Community:	public	
Tag (optional)	4094	(2~4094)
Trap IP Address 1:	192.168.100.237	(format) (***.***.***.***)
Trap IP Address 2:	192.168.100.18	(format) (***.***.***.***)
Trap IP Address 3:	192.168.0.18	(format) (***.***.***.***)
Trap IP Address 4:		(format) (***.***.***.***)
Trap IP Address 5:		(format) (***.***.***.***)

Update Cancel

Note: if Tag field is set, then remote site will disconnect immediately!

2. Configure the VID (VLAN ID) of the system from 2 to 4094.
3. Configure the trap IP Addresses, as you want. Here in example, we create 3 IPs. The trap IP can be created maximum up to 5.
4. Click on the **Apply** button to submit your changes, or click on the **Cancel** button if you want to clear all the values you have configured.

Configuring Management IP {*Management IP*}

Allow you to configure the management IPs so that only with those configured management IPs can access to your ADSL IP DSLAM remotely. The procedures are as follows:

1. Click on “**Management IP**” of the Management Menu.

The **Management IP** screen appears as follows:

Management IP Group		
Group	Management IP Address (format) (***,***,***,***)	Subnet Mask (format) (***,***,***,***)
1	192.168.0.1	255.255.255.128
2	192.168.100.1	255.255.255.0
3	210.67.0.128	255.255.255.128
4		
5		

Note: if management IP field is set, the device will reject all IP connections except management IP you set!

2. Configure the management group, as you want. The management IP group can be created maximum up to 5 groups.
3. Click on the **Update** button to submit your changes, or click on the **Cancel** button if you want to clear all the values you have configured.

3.11 Performance Monitor

This section covers performance monitor by selecting **DSL Port Performance** from EmWeb Menu. It includes:

ADSL Physical Layer PM {Physical Layer Info}

Allow you to view the performance information on physical layer by specifying the definite unit. The procedures are as follows:

1. Click on “**Physical Layer Info**” of DSL Port Performance Menu.

The **Physical Layer Info** screen appears as follows:

Physical Layer Information:

Unit No

Unit No.	Port No.	CO / RT	SNR Margin	Attenuation	Status	Output Power	Attainable Rate
1	1	CO	36.0	1.0	NO DEFECT	3	3552
		RT	36.0	0.0	NO DEFECT	10	704
1	2	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	3	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	4	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	5	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	6	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	7	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	8	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	9	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	10	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	11	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	12	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	13	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	14	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	15	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0
1	16	CO	0.0	0.0	LOS	0	0
		RT	0.0	0.0	LOS	0	0

Note: In this example, only port 1 is connected with CPE and that is why only “No defect” value is displayed in the unit 1/port 1 row.

Table 3-6 Physical Layer Info Field Definitions

Field	Definition
SNR margin	Noise margin value. (dB)
Attenuation	Difference in the total power transmitted and the total power received by the peer atu. (db)
Status	Current status of the ATU line. The possible

	values displayed are as follows: No defect: there are no defect on the line los: atu-r failure due to not receiving signal lpr: atu-r failure due to loss of signal
output power	Total output power transmitted by atu. (dBm)
attainable rate	The maximum currently attainable data rate by the atu. (kbps)

ADSL Channel Layer PM {Channel Layer Info}

Allow you to view the performance information on channel layer by specifying the definite unit. The procedures are as follows:

1. Click on “**Channel Layer Info**” of DSL Port Performance Menu.

The **Channel Layer Info** screen appears as follows:

Channel Layer Information:

Unit No.

Unit No.	Port No.	CO / RT	Interleave Delay	Previous Tx Rate	Current Tx Rate	CRC Block Length
1	1	CO	0	0	0	0
		RT	0	0	0	0
1	2	CO	0	0	0	0
		RT	0	0	0	0
1	3	CO	0	0	0	0
		RT	0	0	0	0
1	4	CO	0	0	0	0
		RT	0	0	0	0
1	5	CO	0	0	0	0
		RT	0	0	0	0
1	6	CO	0	0	0	0
		RT	0	0	0	0
1	7	CO	0	0	0	0
		RT	0	0	0	0
1	8	CO	0	0	0	0
		RT	0	0	0	0
1	9	CO	0	0	0	0
		RT	0	0	0	0
1	10	CO	0	0	0	0
		RT	0	0	0	0
1	11	CO	0	0	0	0
		RT	0	0	0	0
1	12	CO	0	0	0	0
		RT	0	0	0	0
1	12	CO	0	0	0	0

Table 3-7 Channel Layer Information Field Definitions

Field	Definition
Interleave delay	Interleave delay for this channel. (milli-seconds)
Previous TX rate	previous actual transmit rate on this channel if ADSL loop retain. (kbps)
Current TX rate	Actual transmit rate on this channel. (kbps)
CRC block length	The length of the channel data-block on which the CRC operates.

ADSL Physical Layer PM within Current 15 Minutes and a Day Duration {Current Phy-Layer PM}

Allow you to view the physical layer performance collected within current 15 minutes and a day duration. The procedures are as follows:

1. Click on “**Current Phy-Layer PM**” of the DSL Port Performance Menu.

The **Current Phy-Layer PM** screen appears as follows:

Current Physical Layer Performance Management:

Unit No Port No (1~16)

Items	CO	RT
Lofs	0	0
Loss	1	1
Lols	1	-
Lprs	0	0
Ess	35032	35032
Initis	0	-
Current 15-min time elapsed	324	324
Current 15-min Lofs	0	0
Current 15-min Loss	319	319
Current 15-min Lols	319	-
Current 15-min Lprs	0	0
Current 15-min Ess	319	319
Current 15-min Initis	0	-
Current 1-day time elapsed	35419	35419
Current 1-day Lofs	0	0
Current 1-day Loss	35032	35032
Current 1-day Lols	35032	-
Current 1-day Lprs	0	0
Current 1-day Ess	35032	35032

Table 3-8 Current Phy-Layer PM Information Field Definitions

Field	Definition
CO	down stream
RT	up stream
Lofs	number of lof failures since reset.
Loss	number of los failures since reset.
Lols	number of lol failures since reset.
Lprs	number of lpr failures since reset.
Ess	number of error seconds since reset.
Initis	number of initialization attempts since reset. it includes both successful and failed attempts.
Current 15-min time elapsed	number of seconds that have elapsed within the current 15 minutes. a full interval is 900 seconds.
Current 15-min lofs	number of seconds in the current 15-minute interval during which lof was detected.
Current 15-min loss	number of seconds in the current 15-minute interval during which los was detected.
Current 15-min lols	number of seconds in the current 15-minute interval during which lol was detected.
Current 15-min lprs	number of seconds in the current 15-minute interval during which lpr was detected.

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Field	Definition
Current 15-min ess	number of error seconds in the current 15-minute interval.
Current 15-min inits	number of inits in the current 15-minute interval. it includes both successful and failed attempts.
Current 1-day time elapsed	number of seconds that have elapsed since the beginning of the current 1-day interval.
Current 1-day lofs	number of seconds in the current 1 day interval during which lof was detected.
Current 1-day loss	number of seconds in the current 1 day interval during which los was detected.
Current 1-day lols	number of seconds in the current 1 day interval during which lol was detected.
Current 1-day lprs	number of seconds in the current 1 day interval during which lpr was detected.
Current 1-day ess	number of error seconds in the current 1 day interval.

ADSL Channel Layer PM within Current 15 Minutes and a Day Duration {Current Channel-Layer PM}

Allow you to view the channel layer performance collected within current 15 minutes and 1-day duration.

1. Click on “**Current Channel-Layer PM**” of the DSL Port Performance Menu.

The **Current Channel-Layer PM** screen appears as follows:

Current Channel Layer Performance Management:

Unit No Port No (1~16)

Items	CO	RT
Received blocks	0	0
Transmitted blocks	0	0
Corrected blocks	0	0
Uncorrected blocks	0	0
Current 15-min time elapsed	371	371
Current 15-min received blocks	0	0
Current 15-min transmitted blocks	0	0
Current 15-min corrected blocks	0	0
Current 15-min uncorrected blocks	0	0
Current 1-day time elapsed	35466	35466
Current 1-day received blocks	0	0
Current 1-day transmitted blocks	0	0
Current 1-day corrected blocks	0	0
Current 1-day uncorrected blocks	0	0

Table 3-9 Current Channel-Layer PM Information Field Definitions

Field	Definition
CO	down stream
RT	up stream
Received blocks	the total number of blocks of data received since the last agent reset.
Transmitted blocks	the total number of blocks of data transmitted since the last agent reset.
Corrected blocks	number of corrected blocks of data transmitted since the last agent reset.
Uncorrected blocks	number of corrected blocks of data transmitted since the last agent reset.
Current 15-min time elapsed	number of seconds that have elapsed since the start of the current 15-minute interval.
Current 15-min received blocks	number of blocks of data received during the current 15-minute interval.
Current 15-min Transmitted blocks	number of blocks of data transmitted during the current 15-minute interval.
Current 15-min corrected blocks	number of corrected blocks of data transmitted during the current 15-minute interval.
Current 15-min Uncorrected blocks	number of uncorrected blocks of data transmitted during the current 15-minute interval.
current 1-day time elapsed	number of seconds that have elapsed since the start of the current day interval.

Field	Definition
Current 1-day received blocks	number of blocks of data received during the current day interval.
Current 1-day transmitted blocks	number of blocks of data transmitted during the current day interval.
Current 1-day corrected blocks	number of corrected blocks of data transmitted during the current day interval.
Current 1-day uncorrected blocks	number of uncorrected blocks of data transmitted during the current day interval.

ADSL Physical Layer PM within Previous 15 Minutes Duration {15 MIN Phy-Layer PM}

Allow you to view the physical layer performance during previous 15 minutes interval.

1. Click on “15 MIN Phy-Layer PM” of the DSL Port Performance Menu.

The 15 MIN Phy-Layer PM screen appears as follows:

Previous 15-MIN Physical Layer Performance Management:

Unit No Port No (1-16)

Previous Period	CO						RT			
	Lofs	Loss	Lols	Lprs	Ess	Inits	Lofs	Loss	Lprs	Ess
1	0	890	890	0	890	0	0	890	0	890
2	0	891	891	0	891	0	0	891	0	891
3	0	891	891	0	891	0	0	891	0	891
4	0	890	890	0	890	0	0	890	0	890
5	0	891	891	0	891	0	0	891	0	891
6	0	890	890	0	890	0	0	890	0	890
7	0	891	891	0	891	0	0	891	0	891
8	0	890	890	0	890	0	0	890	0	890
9	0	891	891	0	891	0	0	891	0	891
10	0	890	890	0	890	0	0	890	0	890
11	0	891	891	0	891	0	0	891	0	891
12	0	890	890	0	890	0	0	890	0	890
13	0	891	891	0	891	0	0	891	0	891
14	0	891	891	0	891	0	0	891	0	891
15	0	890	890	0	890	0	0	890	0	890
16	0	891	891	0	891	0	0	891	0	891
17	0	891	891	0	891	0	0	891	0	891
18	0	890	890	0	890	0	0	890	0	890
19	0	891	891	0	891	0	0	891	0	891
20	0	890	890	0	890	0	0	890	0	890
21	0	891	891	0	891	0	0	891	0	891
22	0	890	890	0	890	0	0	890	0	890
23	0	891	891	0	891	0	0	891	0	891
24	0	890	890	0	890	0	0	890	0	890

Table 3-10 15 MIN Phy-Layer PM Information Field Definition

Field	Definition
CO	down stream
RT	up stream
Lofs	counts of lof since agent reset within previous 15-min interval.
Loss	counts of los since agent reset within previous 15-min

	interval.
Lols	counts of lol since agent reset within previous 15-min interval. (but only on atu-c side)
Lprs	counts of lpr since agent reset within previous 15-min interval.
Ess	counts of es since agent reset within previous 15-min interval.
Inits	counts of adsl line initialization attempts since agent reset, including both successful and failed attempts within previous 15-min interval. (but only on atu-c side)

ADSL Physical Layer PM within Previous 1 Day Duration {1 DAY Phy-Layer PM}

Allow you to view the physical layer performance during previous 1 day interval.

1. Click on “1 DAY Phy-Layer PM” of the DSL Port Performance Menu.

The 1 DAY Phy-Layer PM screen appears as follows:

Previous 1-DAY Physical Layer Performance Management:

Unit No Port No (1~16)

Previous Period	CO						RT			
	Lofs	Loss	Lols	Lprs	Ess	Inits	Lofs	Loss	Lprs	Ess

Table 3-11 1-DAY Phy-Layer PM Information Field Definition

Field	Definition
CO	down stream
RT	up stream
lofs	counts of lof since agent reset within previous 1day interval.
loss	counts of los since agent reset within previous 1day interval.
lols	counts of lol since agent reset within previous 1day interval. (but only on atu-c side)
lprs	counts of lpr since agent reset within previous 1day interval.
ess	counts of es since agent reset within previous 1day interval.
inits	counts of adsl line initialization attempts since agent reset, including both successful and failed attempts

within previous 1 day interval.(but only at atu-c side)

ADSL Channel Layer PM within Previous 15 Minutes Duration {15 MIN Channel-Layer PM}

Allow you to view the channel layer performance during previous 15 minutes interval.

1. Click on “15 MIN Channel-Layer PM” of the DSL Port Performance Menu.

The 15 MIN Channel-Layer PM screen appears as follows:

Previous 15-MIN Channel Performance Management:

Unit No Port No (1~16)

Previous Period	CO				RT			
	Received blocks	Transmitted blocks	Corrected blocks	Uncorrected blocks	Received blocks	Transmitted blocks	Corrected blocks	Uncorrected blocks
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0

Table 3-12 15 MIN Phy-Layer PM Information Field Definition

Field	Definition
CO	down stream
RT	up stream
Received blocks	the total number of blocks of data received during the previous 15min interval.
Transmitted blocks	the total number of blocks of data transmitted during the previous 15min interval.
Corrected blocks	number of corrected blocks of data transmitted during the previous 15min interval.
Uncorrected blocks	number of uncorrected blocks of data transmitted during the previous 15min interval.

ADSL Channel Layer PM within Previous 1 Day Duration {1 DAY Channel-Layer PM}

Allow you to view the channel layer performance during previous 1 day interval.

1. Click on “1 DAY Channel-Layer PM” of the DSL Port Performance Menu.

The 1 DAY Channel-Layer PM screen appears as follows:

Previous 1-DAY Physical Layer Performance Management:

Unit No Port No (1~16)

Previous Period	CO						RT			
	Lofs	Loss	Lols	Lprs	Ess	Inits	Lofs	Loss	Lprs	Ess

Table 3-13 1 DAY Phy-Layer PM Information Field Definition

Field	Definition
CO	down stream
RT	up stream
Received blocks	the total number of blocks of data received during the previous 1day interval.
Transmitted blocks	the total number of blocks of data transmitted during the previous 1day interval.
Corrected blocks	number of corrected blocks of data transmitted during the previous 1day interval.
Uncorrected blocks	number of uncorrected blocks of data transmitted during the previous 1day interval.

3.12 Miscellanea

This section covers miscellanea by selecting **Misc** from EmWeb Menu. It includes:

IGMP Snooping Configuration {*IGMP_Snooping Config*}

Allows you to view and modify IGMP Snooping Configuration. The procedure is as follows:

1. Enter **Misc** Menu and the click on “**IGMP Snooping Config**” of IGMP snooping menu.
2. The **IGMP Snooping Config** screen appears as follows:

IGMP Snooping Configuration	
Function	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Query	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Interval	<input type="text" value="250"/> (125 ~ 250) seconds.
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

3. Select the function is disable or enable.
4. Select the active query is disable or enable.
5. Define the active query interval, 125~250 seconds.
6. Click on **Apply** bottom to submit your configuration or **Cancel** bottom to clear your configuration.

IGMP Snooping Status {*IGMP_Snooping Status*}

Allow you to view IGMP Snooping status. The procedure is as follows

1. Enter **Misc** Menu, and then Click on “**IGMP Snooping Status**” of IGMP Snooping menu.

The **IGMP Snooping Status** screen appears as follows:

IGMP Snooping Table
01-00-5e-01-01-01:
Unit 1 : 4
01-00-5e-01-01-02:
Unit 1 : 1
01-00-5e-01-01-03:
Unit 1 : 1 4

Table 3-14 IGMP Snooping Table Definition

Items	Description
Group Address	IGMP group address.
Member of group	Member included in groups.

SNTP Status {*SNTP Status*}

Allow you to view the SNTP Client status and execute further configuration. The procedure shows as follows.

1. Enter **Misc** Menu and click on “**SNTP Status**” of SNTP menu. The SNTP screen appears as follows:

SNTP Client

Status	<input checked="" type="radio"/> Disable	Modify
Timezone	UTC . Universal (Coordinated) (+/-UTC: 0000)	Modify

SNTP/NTP Server List	Status	Action
Add SNTP/NTP Server IP		

2. To configure the SNTP status, enable or disable, click on **Modify**, and then the screen appears as follows:

Modify Status of SNTP

☒ Enable
☐ Disable

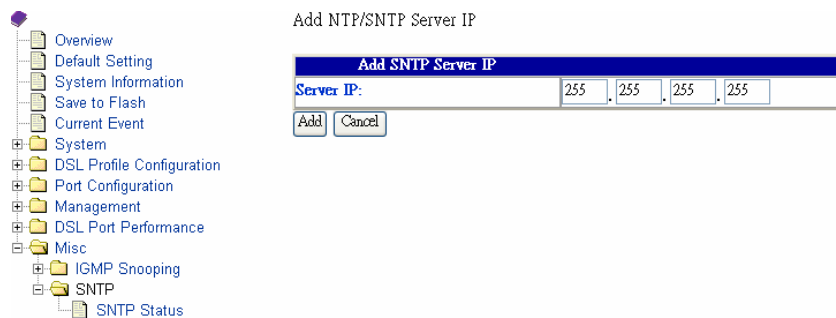
[Apply](#) [Cancel](#)

3. Select **Enable** to activate SNTP and then click on **Apply** bottom to confirm.
4. To configure the Time zone, click on **Modify** and then the screen appears as follows:



5. Select a new time zone and click on **Set New Timezone** button to submit your setting.

6. If to add a SNTP/NTP Server IP, click on **add SNTP/NTP Server IP**, and the screen appears as follows:



7. Set a new server IP and click on Add button to add the IP into the SNTP/NTP server IP list or click on Cancel button to return to System Date and Time screen.

System Administration with CLI

4

Command Line Interface (CLI) is the primary user interface to Administrate the system. CLI can be accessed either from the CID port or telnet session. All CLI commands are simple strings designed for the Administrator to manage your ADSL IP DSLAM easily.

4.1 Command Structure

There are three-level command structure used in the system. All commands have the following general format:

IPDSLAM# <action> Identifier parameters

Action	Identify the specific function to be acted. For example, in the case of viewing the information of 16 th port of ADSL IP DSLAM, you must enter the command “show port16”. “show” is the <action>.
Identifier	Indicate the object of the specific function to be acted. For example, in the case of viewing the information of 16 th port, you must enter the command “show port 16”; “port” is the <identifier>.
Parameter	Usually indicate the destination or configuring values. In parameter description, <> means the required fields in a command, whereas [] and are the optional fields in a command. For example, in the case of viewing the information of 16 th port, you must enter the command “show port 16” to; “16” is the parameters

Table 4-1 CLI Command - Action List

<action>	Description
show	Used to view information of the selected identifier and parameters.
add	Used to add configuration of objects according to the identifier and parameters. Parameters are used for selecting specific facility and arguments. For example, "16" specifies the 16 th port of ADSL IP DSLAM.
config	Used to set or modify existing configuration of objects corresponding to the identifier and parameters. But lineprof name -default and alarmprof name default can not be configured.
delete	Used to delete configuration of objects corresponding to the identifier and parameters. If the delete action is confirmed, the configuration of objects will no longer exist.
help	Used to view the detailed usage of CLI commands.
history	Used to view the list of CLI commands that the user have used.
reset	Used to reset a port of system.
restart	Used to restart the system.
save	Used to save the configuration to Flash RAM.
default	Used to restore the default setting to system.
upgrade	Used to upgrade the system file.
exit	Used to terminate the CLI.

Table 4-2 CLI Command – Identifier List

<identifier>	Description
sysinfo	Allow users to view or config the whole system information of ADSL IP DSLAM.
sysip	Allow users to view or config IP of system.
snmp	Allow users to view or config VID and community for SNMP.
time	Allow users to view or config the current system date and time.
sntp	Allow users to view, add, delete or config sntp.
user	The users' information of system.
password	Allow users to modify him (herself) password.
subscriber	Allow users to view, add, delete or config the basic information of the subscriber of each port.
event	Allow users to view the events of system.
trapdest	Allow users to view, add or delete the trap destination.
manip	Allow users to view, add, or delete management IP groups.
portfilter	Allow users to view or config port-filter status.
port	Allow users to view or config status and information of each port, or allow users to enable/disable port.
route	Allow users to view, add or delete the routing node in the routing table.
connection	Allow users to view or config the connection information of each port sorting by port id.
vid	Allow users to view the vid information sorting by VLAN ID.
lineprof	Allow users to view, add, delete or config ADSL line profile.
alarmprof	Allow users to view, add, delete or config the alarm threshold values in an ADSL.
adslline	Allow users to view or config the information of ADSL line.

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adslchannel	Allow users to view the channel layer parameters of ADSL lines.
adslphysical	Allow users to view the physical layer parameters of ADSL lines.
adslchperf	Allow users to view the performance statistics collected on channel layer of ADSL line.
adslchintl	Allow users to view the statistics information collected on channel layer within 15-minutes or 1-day interval.
adslphperf	Allow users to view the performance statistics collected on physical layer of ADSL lines.
adslphintl	Allow users to view the statistics information collected on physical layer within 15-minutes or 1-day interval.
igmpconf	Allow users to view or config the configurations of IGMP.
igmpgroup	Allow users to view the IGMP groups.
igmppm	Allow users to view and reset the IGMP PM.
ethermode	Allow users to view and configure Ethernet rate mode
dhcpcd	Allow users to view and configure DHCP server

Table 4-3 Relation between <action> and <identifier>

<action>	<identifier>
show	adslchannel
	adslchintl
	adslchperf
	adslphperf
	adslphintl
	alarmprof
add	connection
	lineprof
	manip
	port
	portfilter
	snmp
config	sysinfo
	sysip
	subscriber
	time
	trapdest
	sntp
delete	route
	ethermode
	dhcpcd
	alarmprof
	connection
	lineprof
Help	show/add/config/delete/..... /show sysinfo/config time/.....
	history
	None
	reset
	port
	restart
Save	None
	Default
	None
	Upgrade
	Enable / disable
	exit
	None

Table 4-4 CLI Command – Parameter List

<action>	<parameter>	Description
show <identifier>	all	Allow you to view all information.
	< port no.>	Allow you to view the specified port's information.

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<action>	<parameter>	Description
	< port no.> [c/r]	Allow you to view the CO or RT information by specifying a port (1 ~ 16).

<action>	<parameter>	Description
add alarmprof (alarmprof-atuc)	<profile Name> <Thresh15MinLofs> <Thresh15MinLoss> <Thresh15MinLols> <Thresh15MinLprs> <Thresh15MinESs> <InitFailureTrapEnable>	Setting alarm profile name. Allow you to set the threshold value of CO side alarms.
(alarmprof-atur)	<Thresh15MinLofs> <Thresh15MinLoss> <Thresh15MinLprs> <Thresh15MinESs>	Allow you to set the threshold value of RT side alarms.
add connection	< unit no./port no.> <vpi/vci> <AdminStatus>[VID] [Priority]	Allow you to create the PVC by specifying a port (1 ~ 16).
add lineprof (lineprof-atuc)	<profile name> <RateMode> <RateChanRatio> <TargetSnrMgn> <MinTxRate> <MaxTxRate> <MaxInterleaveDelay>	Setting Line profile name. Allow you to add ATU-C items of line profile.
(lineprof-atur)	<RateMode> <RateChanRatio> <TargetSnrMgn> <MinTxRate> <MaxTxRate> <MaxInterleaveDelay>	Allow you to add ATU-R items of lineprof.
add manip	<IP1> [musk]	Allow you to define the management IP
add trapdest	<IP address>	Allow you to define trap destination.
add user	<Username><Administrator operator guest>	Allow you to create new account of Administrator or operator or guest.
add sntp server	<IP>	Allow you to add a SNTP IP address.
add route	<name><dest><mask><port no>	Allow you to add a route

config adslline	<port no.> <lineprof> <alarmprof>	Modify ADSL line configuration by arguments.
config alarmprof (alarmprof-atuc)	<profile Name> <Thresh15MinLofs> <Thresh15MinLoss> <Thresh15MinLols> <Thresh15MinLprs> <Thresh15MinESs> <InitFailureTrapEnable>	Modify existing alarm profile. Modify the threshold value of CO side alarms

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<action>	<parameter>	Description
(alarmprof-atur)	<Thresh15MinLofs> <Thresh15MinLoss> <Thresh15MinLprs> <Thresh15MinESs>	Modify the threshold value of RT side alarms
config connection	< port no.> <PVC1> <PVC2> <AdminStatus> [VID] [Priority]	Modify pvc (vpi/vci) and VLAN ID by specifying a port.
config lineprof (lineprof-atuc)	<profile name> <RateMode> <RateChanRatio> <TargetSnrMargin> <MinTxRate> <MaxTxRate> <MaxInterleaveDelay>	Modify existing line profile. Modify the configuration of CO side of line profile.
(lineprof-atur)	<RateMode> <RateChanRatio> <TargetSnrMargin> <MinTxRate> <MaxTxRate> <MaxInterleaveDelay>	Modify the configuration of RT side of line profile.
config manip	<IP> [musk]	Allow you to modify the existing management IP
config password	None	Change the user's password
config port	<all port#> <up down>	Set the state of ADSL port.
config portfilter	<enable disable>	Port filtering configuration
config snmp	<community> [SNMP VID]	Modify the SNMP VID and community.
config subscriber (subscriber)	< port no.> <subscriber name> <telephone number> <Note>	Modify subscriber information for specific port. Modify subscriber information by arguments.
config sysinfo (system name) (location) (contact) (console name)		Modify the information of system by modifying system name, location, contact and console name.
config sysip	<IP> <submask> <gateway>	Modify the IP arguments of system.
config time	<date> <time>	
config user	<User-name> <Administraot operator gues t	Modify user's account and privilege.
config igmps	None	Configure IGMP snooping
config sntp	<enable/disable>	Configure SNTP status
config sntp timezone	<timezone>	Configure local time zone
delete alarmprof	<profile name>	Delete ADSL alarm profile by selecting alarm profile name.
delete connection	</port no.> <vpi/vci>	Delete pvc by selecting (vpi/vci) of ADSL IP DSLAM port no.
delete event	none	Delete all event information

<action>	<parameter>	Description
delete lineprof	<profile name>	Delete ADSL line profile by selecting profile name.
delete manip	<IP address>	Delete the specific IP.
delete trapdest	<IP address>	Delete Trap destination IP
delete user	<user name>	Delete user information by selecting user name.
Delete route	<name>	Delete all or one item of routing table.
help	Add, delete.....	Show usage of commands
history	none	The used command.
reset port	< all./port no.>	Reset Port
restart	none	Restart system
save	none	Save configuration to Flash Ram.
default	none	Restore the default setting.
upgrade	enable/disable	Enable/ disable upgrade function
exit	none	Restore the default setting

Calling Commands

To recall commands from the history buffer, perform one of these tasks.

Command	Task
The up arrow key	Recall commands in the history buffer, beginning with the most recent command. Repeat the key sequence to recall successively older commands.
The down arrow key	Return to more recent commands in the history buffer after recalling commands with “the up arrow key”. Repeat the key sequence to recall successively more recent commands.

4.2 General Configuration

Help Command

“Help” command can be used to get help specific to a command mode by entering `help <command>` or `help <command> <parameter>`.

Command: `help`

History Command

“History” command is used for to trace the command all users have entered.

Command: `history`

Saving the System

Describes how to save system configuration you have defined to Flash RAM.

Command: `save`

Note: Before you restart the system, remember to save the system by entering the command “save” or the system will restart at the previous settings.

4.3 Event Viewing and Deleting

Displaying the Current Event

Describes how to display the current event of system.

Command: show event

Example: This example shows how to display the current status of system.

IPDSLAM # show event				
No	Time	Source	Severity	Description
1	2001/07/16 14:27:05	8	major	loss threshold occurs
2	2001/07/16 14:27:15	5	inform	port down

Table 4-5 "show event" Field Definition

Field	Definition
No	Index of each event.
Time	The time when the event occurs.
Source	The port where the event occurs.
Severity	Priority of event (major/minor/inform)
Description	Description of the event information.

Deleting the Event of ADSL IP DSLAM

Describes how to delete the event of system.

Command: delete event

Reset Port

Reset Port

Describes how to reset the specific port.

Command: reset port <all / port no.>

Example: This example shows how to reset the specific unit 1/ port 8.

```
IPDSLAM # reset port 8
Yes or No <y/n>?
```

Restart the ADSL IP DSLAM

Describes how to restart the system without turning on/off power.

Command: restart

Example: This example shows how to restart the system.

```
IPDSLAM # restart
Yes or No <y/n>?
System is restarting now. Wait...
```

Note: Before you restart the system, be sure that you save all the configurations by entering the command “save” or the system will start with the previous settings.

Resetting all Configurations to Default Setting

Describes how to reset all configurations to default.

Command: default

Note: The system will return to the original default settings.

Example:

```
IPDSLAM # default
Danger!! This will affect your whole system.

Yes or No <y/n>?

You have restored the default setting to system.
```

System Upgrade

Describes how to enable or disable download without in-band management channel (VLAN).

Command: upgrade <enable | disable>

Argument List:

Parameter type	Description
Enable / disable	Enable / disable upgrade mode

Example: This example shows how to enable download without in-band management channel.

```
IPDSLAM # upgrade enable

Yes or No <y/n>? y

System is in the "upgrade" mode now. You could start to upgrade the
system file.
```

Logging Out your ADSL IP DSLAM

Describes how to log out the system.

Command: `exit`

Note: Before you log out the system, be sure that you save all the configurations by entering the command "save" or the system will start with the previous settings.

4.4 Configuring Your ADSL IP DSLAM

System Configuration

Displaying Hardware and Software Information

Describes how to view the hardware and software information of ADSL IP DSLAM.

Command: `show sysinfo`

Example: This example shows how to display the hardware and software information of ADSL IP DSLAM. The following descriptions are default setting, of which system name, location, contact and console name can be modified.

```
IPDSLAM # show sysinfo
System name: IPDSLAM
Location:
Contact:
Console name: IPDSLAM

1. Hardware version: A1
2. Software version: 1.00
```


3. Serial number: 00-01-eb-02-02-7a
4. Description: Asotel DSA-3216 ADSL IP DSLAM
5. Temperature: Normal

Table 4-6 Sysinfo field definition

Field	Definition
System name	Alias name of ADSL IP DSLAM
Location	Location of system
Contact	Contact person for service and how to contact.
Console name	Console name of the system.
Hardware version	Hardware version of system.
Software version	Software version of system.
Serial number	Serial number of system.
Description	Description of system.
FAN status	Normal/Alarm

Modifying System Information

Describes how to modify the system information of system name, location, contact and console name.

Command: `config sysinfo`

Argument List:

Parameter type	Parameter data-type and field	Description
System name	String, <= 32	Name of ADSL IP DSLAM.
Location	String, <=32	Location of system
Contact	String, <= 32	Contact person and how to contact
Console name	String, <=16 (default: ADSL IP DSLAM)	Name of console title. (Empty for default)

Example: This example shows how to modify the name of system as ZTE 123, console name as DSLAM and description of system as East Building

```
IPDSLAM # config sysinfo
(sysinfo-name)# ZTE 123
(sysinfo-location)# East Building
(sysinfo-contact)# Lee Gi, gi@yah.com
(sysinfo-console name)# DSLAM
System name: ZTE 123
Location: East Building
Contact: Lee GI, GI@YAH.COM
Console name: DSLAM

Yes or No <y/n>?
```

Port-Filtering Configuration

Displaying Port-Filtering

Describes how to display the status of port-based VLAN.

Command: `show portfilter`

Example: This example shows how to view the status of port-based VLAN

```
IPDSLAM # show portfilter
Port filter: enable
```

Table 4-7 “show portfilter” Filed Definition

Items	Description
Enable/ disable	Enable: Allow each ADSL port to communicate back and forth with the uplink Ethernet port only. Disable: Allow all ADSL ports to communicate with each other and also with the uplink Ethernet port.

Modifying Port-Filter

Describes how to configure port-filtering function whether to allow each ADSL port communicate with the uplink Ethernet port only or communicate with each other and so do with the Ethernet port.

Command: `config portfilter <enable|disable>`

Argument List:

Parameter type	Parameter data-type and field	Description
Status	Enable/disable	Enable: Allow each ADSL port to communicate back and forth with the uplink Ethernet port only. Disable: Allow all ADSL ports to communicate with each other and also with the uplink Ethernet port.

Example: This example shows how to enable the portfilter and allow each ADSL port to communicate with the uplink Ethernet port only.

```
IPDSLAM # config portfilter enable
```

```
Yes or No <y/n>?
```

This example shows how to disable the portfilter and allow all ADSL port to communicate with each other and also with the uplink Ethernet port.

```
IPDSLAM # config portfilter disable
```

```
Yes or No <y/n>?
```

Note: The default setting is “Enable”

IP Configuration

Displaying System IP

Describes how to view the system IP.

Command: show sysip

Example: This example shows how to display the system IP. The following descriptions are default setting.

```
IPDSLAM # show sysip
IP: 192.168.10.2
Submask: 255.255.255.0
Gateway: 192.168.10.1
```

Table 4-8 Sysip Field Definition

Field	Definition
IP	IP of System
Submask	Submask of system.
Gateway	Gateway IP

Modifying System IP

Describes how to modify the system IP.

Command: config sysip <IP> <Submask> <Gateway>

Argument List:

Parameter type	Parameter data-type and field	Description
IP	A.B.C.D	IP of ADSL IP DSLAM
Submask	A.B.C.D	Submask of ADSL IP DSLAM
Gateway	A.B.C.D	Gateway of ADSL IP DSLAM

Example: This example shows how to modify the system IP as 192.168.10.100, submask as 255.255.255.0 and gateway as 192.168.10.1.

```
IPDSLAM # config sysip 192.168.10.100 255.255.255.0 192.168.10.1
<IP>: 192.168.10.100
<Submask>: 255.255.255.0
<Gateway>: 192.168.10.1

Yes or No <y/n>?
```

Time Configuration

Displaying Time

Describes how to display the current system time, system up time and period

Command: `show time`

Example: This example shows how to display the time of ADSL IP DSLAM.

```
IPDSLAM # show time
1.Current Time: 2001/07/16 11:05:35
2.System up time: 2001/7/15 10:00:25
3.System up period: 1 day 01:05:10
```

Table 4-9 Time Field Definition

Field	Definition
Current Time	Current system time.
System up time	System up time.
System up period	System up period.

Modifying Time

Describes how to modify the date and time of system.

Command: `config time <date> <time>`

Argument List:

Parameter type	Parameter data-type and field	Description
date	yyyy/mm/dd	e.g: 2001/07/13
time	hh:mm:ss	24-hour time format

Example: This example shows how to modify the system time to date:2001/07/13, time: 20:25:30.

```
IPDSLAM # config time 2001/07/13 20:25:30
Date: 2001/07/13
Time: 20:25:30
Yes or No <y/n>?
```

SNTP configuration

Displaying SNTP

Describe how to display the SNTP.

Command: `show sntp`

Example: This example shows how to display the SNTP of ADSL IP DSLAM.

```
IPDSLAM# show sntp

SNTP Status: Disable

Time Reference Server IP addr:

Active Time Reference Server IP addr:0.0.0.0

-SNTP CLIENTS STATUS-
-----
Clock Synchronized:          FALSE
SNTP Standard Version Number: 4
SNTP Mode<s> Configured:    Unicast
Local Time:                  Fri, 05 Mar 2004 – 09:40:27
Local Time Zone;             UTC, Universal <coordinated> Time
Time Difference +- UTC:      +0:00
Server Stratum:              0
Precision:                   1 second
Server Reference ID:         ----

IPDSLAM #
```

Adding a SNTP server address

Describe how to add a SNTP server address.

Command: `add sntp server <IP>`

Example:

```
IPDSLAM # add sntp server 192.168.100.88
IPDSLAM #
```

Modifying sntp

Describe how to modify the sntp.

Command: `config sntp <enable/Disable>`

Example:

```
IPDSLAM # add sntp enable
IPDSLAM #
```

Modifying sntp timezone

Describe how to modify the local timezone.

Command: `config sntp timezone<timezone>`

Note: as to the abbreviation of timezone, please refer to the Appendix-B, the SNTP timezone Abbreviation.

Example: config local time zone as NZT, New Zealand.

```
IPDSLAM # config sntp timezone NZT
IPDSLAM #
```

Changing the Password

This section describes how to change own password regardless of user's privilege.

Command: `config password`

Example: This example shows how the user changes his own password.

```
IPDSLAM # config password
Enter new password:*****
Confirm password : *****
Yes or No <y/n>?
```

4.5 Configuring DSL

Creating Line Profile and Alarm Profile

Creating DSL Profile

Describes how to create a DSL Profile.

Command: `add lineprof <profile name>`

Argument List:

Parameter type	Parameter data-type and field	Description
lineprof name	String, <= 32	The name of ADSL line profile.
Rate Mode	Integer, fixed : (1) adaptAtStartup : (2)	Defines what form of transmitting rate to be adapted.
Line Type	Fast : (1) Interleaved : (2)	The ADSL line type.
TargetSnrMargin	Integer, 2 ~ 15	Target Signal / Noise Margin.
MinTxRate	Integer, ATU-C: "32~ 8064" ATU-R: "32 ~ 1024"	The minimum transmitting rate of ATU-C side or ATU-R side.
MaxTxRate	Integer, ATU-C: "32 ~8064" ATU-R: "32 ~1024"	The maximum transmitting rate of ATU-C side or ATU-R side.
MaxInterleaveDelay	Integer, 1,2,4,8,16,32,64	The value of Interleave Delay for this channel.

Note:

1. If you select "Line Type" as "Fast", you cannot select the value of "MaxInterleaveDelay". Please refer to the first example.
2. If you select "Rate Mode" as "Fixed", the configuration of "MinTxRate" and "MaxTxRate" must be the same. Please refer to the second example.

Example1: This example shows how to create a DSL profile named service512K64K.

```
IPDSLAM # add lineprof service512K64K
(lineprof-atuc)# 2 2 7 32 512 8
(lineprof-atur)# 2 2 7 32 64 8
ADSL Line Profile "SERVICE512K64K" content:
ATU-C:
```

```
Rate Mode: adaptAtStartup
LineType: Interleaved
TargetSnrMargin: 7
MinTxRate: 32
MaxTxRate: 512
MaxInterleaveDelay: 8
ATU-R:
Rate Mode: adaptAtStartup
RateChanRatio: Interleaved
TargetSnrMargin: 7
MinTxRate: 32
MaxTxRate: 64
MaxInterleaveDelay: 8
Yes or No <y/n>
```

Example 2: This example shows how to create a DSL profile named fast.

```
IPDSLAM # add lineprof fast
(lineprof-atuc)# 1 1 6 768 768
(lineprof-atur)# 1 1 6 128 128
ADSL Line Profile "fast" content:
ATU-C:
Rate Mode: fixed
LineType: Fast
TargetSnrMargin: 6
MinTxRate: 768
MaxTxRate: 768
ATU-R:
Rate Mode: fixed mode
RateChanRatio: Fast
TargetSnrMargin: 6
MinTxRate: 128
MaxTxRate: 128
Yes or No <y/n>
```

Note: The configuration of default DSL profile named "DEFAULT" is as follows:

ATU-C:

1. RateMode: AdaptAtStartup
2. RateChanRatio: Interleaved
3. TargetSnrMargin: 6.0
4. MinTxRate: 32
5. MaxTxRate: 8064
6. MaxInterleaveDelay: 16

ATU-R:

1. Rate Mode: adaptAtStartup
2. RateChanRatio: Interleaved
3. TargetSnrMargin: 6.0
4. MinTxRate: 32

5. MaxTxRate: 1024
6. MaxInterleaveDelay:16

Creating Alarm Profile

This section describes how to create an alarm profile.

Command: add alarmprof <profile name>

Argument List:

Parameter type	Parameter data-type and field	Description
alarmprof name	String, <= 32	The name of ADSL alarm profile.
Thresh15MinLofs	Integer, 0 ~ 900	The threshold of the number of "Loss of Frame Seconds" within 15 minutes performance data collection period.
Thresh15MinLoss	Integer, 0 ~ 900	The threshold of the number of "Loss of Signal Seconds" within 15 minutes performance data collection period.
Thresh15MinLols	Integer, 0 ~ 900	The threshold of the number of "Loss of Link Seconds" within 15 minutes performance data collection period. (But only ATU-C side)
Thresh15MinLprs	Integer, 0 ~ 900	The threshold of the number of "Loss of Power Seconds" within 15 minutes performance data collection period.
Thresh15MinESs	Integer, 0 ~ 900	The threshold of the number of "Errored Seconds" within 15 minutes performance data collection period.
InitFailureTrapenable	enable / disable	Enable or disable the Initial Failure Trap. Default setting is disable. (Only on ATU-C side)

Example: This example shows how to create an alarm profile named test.

```
IPDSLAM # add alarmprof test
(alarmprof-atuc)# 30 10 50 5 4 enable
(alarmprof-atur)# 30 2 2 5
ADSL Alarm Profile "test" content:
ATU-C:
Thresh15MinLofs: 30
Thresh15MinLoss: 10
Thresh15MinLols: 50
Thresh15MinLprs: 5
Thresh15MinESs: 4
```

```
InitFailureTrapEnable: enable
ATU-R:
Thresh15MinLofs: 30 seconds
Thresh15MinLoss: 2 seconds
Thresh15MinLprs: 2 seconds
Thresh15MinESs: 5 seconds
Yes or No <y/n>
```

Note: the configuration of default dsl profile named “default” is as follows:

```
ATU-C:
1. Thresh15minlofs: 0
2. Thresh15minloss: 0
3. Thresh15minlols: 0
4. Thresh15minlprs: 0
5. Thresh15miness: 0
6. Initfailuretrapenable: enable
ATU-R:
1. Thresh15minlofs: 0
2. Thresh15minloss: 0
3. Thresh15minlprs: 0
4. Thresh15miness: 0
```

Modifying DSL Profile and Alarm Profile

Modifying DSL Profile

Describes how to modify existing DSL profile but you cannot modify default profile.

Command: `config lineprof <profile name>`

Argument List: the same as Creating DSL Profile. See page 71.

Example: This example shows how to modify the existing DSL line profile named service512K64K.

```
IPDSLAM # config lineprof service512K64K
(lineprof-atuc)# 2 2 6 128 512 1
(lineprof-atur)# 2 2 6 32 64 1
ADSL Line Profile “service512K64K” content:
ATU-C:
Rate Mode: adaptAtStartup
LineType: Interleaved
TargetSnrMargin: 6
MinTxRate: 128
MaxTxRate: 512
MaxInterleaveDelay: 1
ATU-R:
Rate Mode: adaptAtStartup
```

```
LineType: Interleaved
TargetSnrMargin: 6
MinTxRate: 32
MaxTxRate: 64
MaxInterleaveDelay: 1
Yes or No <y/n>?
```

Modifying Alarm Profile

Describes how to modify alarm profile but **you cannot modify default profile.**

Command: `config alarmprof <profile name>`

Argument List: Same as Creating Alarm Profile. See page 73

Example: This example shows how to modify the existing alarm profile test.

```
IPDSLAM # config alarmprof test
(alarmprof-atuc)#5 5 5 5 enable
(alarmprof-atur)#5 5 5 5
ADSL Alarm Profile "test" content:
ATU-C:
Thresh15MinLofs: 5
Thresh15MinLoss: 5
Thresh15MinLols: 5
Thresh15MinLprs: 5
Thresh15MinESs: 5
InitFailureTrapEnable: enable
ATU-R:
Thresh15MinLofs: 5
Thresh15MinLoss: 5
Thresh15MinLprs: 5
Thresh15MinESs: 5
```

Deleting a DSL Profile and Alarm Profile

Deleting DSL Profile

Describes how to delete a profile but you cannot delete the default profile.

Command: `delete lineprof <profile name>`

Example: This example shows how to delete existing line profile service512K64K.

```
IPDSLAM # delete lineprof service512K64K
Yes or No <y/n>?
```

Deleting Alarm Profile

Describes how to delete a alarm profile but **you can't delete the default profile.**

Command: delete alarmprof <profile name>

Example: This example shows how to delete existing alarm profile test.

```
IPDSLAM # delete alarmprof test
Yes or No <y/n>?
```

Displaying a DSL Profile and Alarm Profile

Displaying DSL Profile

This section describes how to display all DSL profile or specific profile.

Command: show lineprof <all | line profile name>

Argument List:

Parameter	Description
all	Show all information.
Line profile name	ADSL line profile name.

Example: This example shows how to display default line profile.

```
IPDSLAM # show lineprof default
ATU-C:
1. RateMode: adaptAtStartup
2. LineType: Interleaved
3. TargetSnrMargin: 6.0
4. MinTxRate: 32
5. MaxTxRate: 8064
6. MaxInterleaveDelay: 16
ATU-R:
1. Rate Mode: adaptAtStartup
2. RateChanRatio: Interleaved
3. TargetSnrMargin: 6.0
4. MinTxRate: 32
5. MaxTxRate: 1024
6. MaxInterleaveDelay: 16
```

Table 4-10 "show lineprof" Field Definition

Field	Definition
RateMode	The form of transmit rate adaptation (fixed/adaptAtStartup)
LineType	Fast or Interleaved mode.

TargetSnrMargin	Target Signal/Noise Margin. (dB)
MinTxRate	The minimum transmitting rate of ATU-C side or ATU-R side. (Kbps)
MaxTxRate	The maximum transmitting rate of ATU-C side or ATU-R side. (Kbps)
MaxInterleaveDelay	The value of Interleave Delay for this channel. (milli-seconds)

Displaying Alarm Profile

Describes how to display all alarm profile or specific alarm profile.

Command: show alarmprof <all | alarm profile name>

Argument List:

Parameter	Description
all	Show all information.
Alarm profile name	ADSL alarm profile name.

Example: This example shows how to display the default alarm profile.

```
IPDSLAM # show alarmprof default
ATU-C:
1. Thresh15MinLofs: 0
2. Thresh15MinLoss: 0
3. Thresh15MinLols: 0
4. Thresh15MinLprs: 0
5. Thresh15MinEss: 0
6. InitFailureTrapenable: enable
ATU-R:
1. Thresh15MinLofs: 0
2. Thresh15MinLoss: 0
3. Thresh15MinLprs: 0
4. Thresh15MinEss: 0
```

Table 4-11 “show alarmprof” Field Definition

Items	Description
Thresh15MinLofs	The threshold of the number of “Loss of Frame Seconds” within 15 minutes performance data collection period. (seconds)
Thresh15MinLoss	The threshold of the number of “Loss of Signal Seconds” within 15 minutes performance data collection period. (seconds)
Thresh15MinLols	The threshold of the number of “Loss of Link Seconds” within 15 minutes performance data collection period. (seconds) (Only ATU-C side)
Thresh15MinLprs	The threshold of the number of “Loss of Power Seconds” within 15 minutes performance data collection period. (seconds)

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Thresh15MinESs	The threshold of the number of “Errored Seconds” within 15 minutes performance data collection period. (seconds)
InitFailureTrapenable	The status of the Initial Failure Trap (enable/disable). (seconds) (Only ATU-C side)

4.6 Port Configuration

Enabling and Disabling a port

Describes how to enable and disable a port.

Command: config port <all | port no.> <up | down>

Argument List:

Parameter	Description
all port no.	Select destination
up down	Enable/Disable ADSL port

Example: This example shows how to set the port 8 enable.

```
IPDSLAM # config port 8 up
Yes or No <y/n>? y
```

Attaching DSL Profile

Describes how to attach a profile to a port.

Command: config adslline < port no.> <lineProfile> <alarmProfile>

Argument List:

Parameter type	Parameter data-type and field	Description
port no.	(1 ~ 16)	Indicated ADSL IP DSLAM port no.
LineProfile	String, <=32	Specifies an ADSL line profile name.
AlarmProfile	String, <=32	Specifies an ADSL alarm profile name.

Example: This example shows how to attach the profile “service 512K64K” and alarm profile “test” to port 8, and displays the result:

```
IPDSLAM # config adslline 8 service512K64K test
LineProfile: SERVICE512K64K
AlarmProfile: TEST
Yes or No <y/n>?
```

Displaying the Current Status and Information of ADSL Line

Displaying the Current Status of Line

Describes how to show the Administration, operating, alarm and trap status.

Command: `show port <all |port no.>`

Argument List:

Parameter	Description
all	Show all information.
port no.	(1 ~ 16). Indicate the specific port.

Example: This example shows how to display the current status of port 8.

```
IPDSLAM # show port 8
1. Port ID: 1/8
2. Admin Status: up
3. Operating Status: up
4. Alarm Status: Normal
5. Trap: disable
```

The following example shows how to display the all port status.

```
IPDSLAM # show port all
```

Port ID	Admin Status	Operating Status	Alarm Status	Trap
1	up	up	Normal	enable
2	up	up	Normal	enable
.		
16	up	up	Normal	enable

Press 'y' for continue, 'n' for break and press Enter.

Table 4-12 “show port” Field Definition

Items	Description
Port ID	The specific ADSL IP DSLAM port no (port no.).
Admin Status	The desired state of interface (up/down)
Operating Status	The current operational state of interface (up/down)
Alarm Status	Alarm status...normal means “no alarm”
Trap	enable/disable.

Displaying the information of ADSL Line

Describes how to get the information of line coding, line type, standard compliance, channel mode and which line profile and alarm profile have attached at the specific ADSL line.

Command: `show adslline <all | port no.>`

Argument List:

Parameter	Description
all	Show all information.
port no.	Port ID

Example: This example shows how to display the port 8 ADSL line information.

```
IPDSLAM # show adsl line 8
1. LineCoding: Multimode
2. LineType: fastOrInterleaved
3. Standard Compliance: G.dmt
4. Channel Mode: fast
3. LineProfile: default
4. AlarmProfile: default
```

Table 4-13 “show adsl line” Field Definition

Field	Definition
LineCoding	Multimode
LineType	fastOrInterleaved
Standard Compliance	(G.dmt / G.lite / T1.413 / Multimode / other)
Channel Mode	(No Channel / fast / interleaved)
LineProfile	Assigned ADSL line profile name.
AlarmProfile	Assigned ADSL alarm profile name.

PVC Configuration

Creating PVC

Describes how to configure a permanent virtual connection, virtual LAN ID, connection priority, Administration status and VLAN tag on the specific port.

Command: add connection < port no.> <vpi/vci> <up|down><b/r> [VID]
[priority]

Argument List:

Parameter type	Parameter data-type and field	Description
port no.	(1 ~ 16)	Indicated port no.
PVC	(0 ~ 4095) / (0 ~ 65535)	VPI/VCI
Admin Status	up/down	Used to up/down connection.
VID (optional)	2 ~ 4094	Optional VLAN ID, no element represents the connection is without VLAN tag.
RFC-1483	b/r	Bridge or route
Priority (optional)	0 ~ 7 (Max:7 , Min:0)	Optional Connection priority. No VLAN tag, no priority.

Example: This example shows how to configure the VPI-0, VCI-50, up Administration status, enable VLAN tag with VLAN ID-4002 and highest connection priority on port 8.

```
IPDSLAM # add connection 8 0/50 up b 4002 7
Port 8
PVC: 0/50
AdminStatus: up
VID: 4002
rfc1483 b<ridge>r<oute>: b
Priority: 7
yes or No <y/n>?
```

This example shows how to configure the VPI-0, VCI-50, up Administration status, and without VLAN tag on port 8 of unit 1

```
IPDSLAM # add connection 8 0/50 up
Port 8
PVC: 0/50
AdminStatus: up
yes or No <y/n>?
```

Note:

- (1) Virtual Connection can be configured up to 2 connections on the same port but the VLAN ID can not overlap with the existing VLAN ID.
- (2) The default setting for PVC is 8/81, and you can modify and delete the default setting.
- (3) The default setting of VLAN ID is without VLAN tag.
- (4) On the same port, one PVC or two PVCs can be created. On the creation of one PVC, the configuration of VLAN ID can either be enabling VLAN tag or disabling VLAN tag. On the creation of two PVCs, the configuration of VLAN ID can either be enabling both VLAN tags or just disabling VLAN tag on a PVC whereas the other will remain with VLAN tag. The situation of both PVC without VLAN tag cannot be configured. Please refer to the table 4-13 for understanding ways of PVC configuration either with VLAN tag or without VLAN tag:

Table 4-14 Ways of PVC configuration either with VLAN tag or without VLAN tag

Port	1 st PVC	2 nd PVC
The same port	With VLAN tag	With VLAN tag
	Without VLAN tag	Without VLAN tag
	Without VLAN tag	With VLAN tag

Modifying PVC

Describes how to modify the virtual connection of the port.

Command: `config connection < port no.> <vpi_old/vci_old>
<vpi_new/vci_new> <up|down><b/r> [VID] [priority]`

Argument List:

Parameter type	Parameter data-type and field	Description
PVC_old	0 ~ 4095(vpi) / 0 ~ 65535(vci)	Existing old ATM PVC
PVC_new	0 ~ 4095(vpi) / 0 ~ 65535(vci)	New ATM PVC you want to modify.
Others	Same as Creating PVC. <i>See page 81</i>	

Example: This example shows how to modify the previous example of This example shows how to modify the previous example of "PVC-0/35, AdminStatus-up, VID-4002, Priority-7" to "PVC-0/80, AdminStatus-up, bridge".

```
IPDSLAM # config connection 3 0/35 0/80 up b 300 7
Port 8:
PVC: 0/35 -> 0/80
AdminStatus: up
rfc1483 b<ridge>r<oute>: b
VID:300
Priority:7
yes or No <y/n>?
```

Deleting PVC

Describes how to delete virtual connection you set, including the default setting.

Command: `delete connection < port no.> <vpi/vci>`

Argument List:

Parameter type	Parameter data-type and field	Description
port no.	(1 ~ 16)	Indicated ADSL IP DSLAM port no.
PVC	(0 ~ 4095) / (0 ~ 65535)	VPI/VC1

Example: This example shows how to delete the connection of port 8.

```
IPDSLAM # delete connection 8 0/50

Yes or No <y/n>?
```

Displaying PVC

Sorted by Port ID

Describes how to display existing virtual connection on each port and sorted by port ID.

Command: `show connection <all | port no.>`

Argument List:

Parameter	Description
all	Show all information.
port no.	(1 ~ 16). Indicate the port no.

Example: This example shows how to display the virtual connection of port 8.

IPDSLAM # show connection 1/8						
Port ID	PVC	VID	Priority	Admin	OpStatus	1483 mode
8	0/40	4000	6	up	up	bridge
8	8/81	9	7	up	down	bridge

Table 4-15 “show connection” Field Definition

Items	Description
Port ID	The specific ADSL IP DSLAM port no.
PVC	VPI/VC1
VID	VID.
Priority	The priority of this connection. (Max: 7 / Min:0)
Admin Status	The Admin status of each connection (up/down).
OpStatus	The operating status of each connection (up/down).
1483 mode	The RFC-1483 mode (bridge/route)

Sorted by VID

Describes how to display existing virtual connection on each port and sorted by VID.

Command: `show vid <all | port no.>`

Argument List:

Parameter	Description
all	Show all information.
port no.	(1 ~ 16). Indicate the specific port no.

Example: This example shows how to display all virtual connection and sorted by increasing VID.

```
IPDSLAM # show vid all
```

VID	Port ID	PVC	Priority	Admin Status	Operating Status
4081	1/1	0/40	7	down	down
4082	1/2	0/40	7	up	up
4083	1/3	0/41	7	up	up
..

```
Press 'Y' to continue, 'N' to break then press Enter.
```

Table 4-16 “show vid” Field Definition

Field	Definition
VID	VID.
Port ID	The ADSL IP DSLAM port no.
PVC	vpi/vci.
Priority	The priority of this connection. (Max:7 / Min:0)
Admin Status	The desired state of each connection (up/down)
Operating Status	The current operational state of each connection (up/down)

Subscriber Configuration

Displaying the Information of Subscriber

Describes how to view the information of subscriber of each port.

Command: `show subscriber <all | / port no.>`

Argument List:

Parameter	Description
all	Show all information.
port no.	Port ID

Example: This example describes how to view the subscriber information on specific port.

```
IPDSLAM # show subscriber 8
1. Subscriber name: pantagon
2. Telephone number: 4236125861
3. Note: Ok
```

Table 4-17 “show subscriber” Field Definition

Field	Definition
Subscriber name	Subscriber name of this port.

Telephone number	Telephone number of this port.
Note	The description of subscriber of this port.

Modifying the Information of Subscriber

Describes how to modify the information of subscriber by specifying port no.

Command: config subscriber <port no.>

Argument List:

Parameter type	Parameter data-type and field	Description
port no.	(1 ~ 16)	Indicated ADSL IP DSLAM port no.
Subscriber name	String, <= 15	The desired subscriber name
Telephone number	String, <= 11	The desired telephone number
Note	String, <= 20	Remarks

Example: This example shows how to modify the subscriber description of port 7.

```

IPDSLAM # config subscriber 7
(subscriber) help
< Subscriber name > < Telephone number > < Note >
(subscriber) adms 2148485965 Test_Again.
ADSL port "1/7" subscriber information:
Subscriber name: adms
Telephone number: 2148485965
Note: Test_Again.

Yes or No <y/n>?
    
```

Routing Table configuration

The following route commands, including show route, add route and delete route, allow user to configured, if the RFC-1483 mode is configured as "Route" in the PVC Configuration. They will be introduced as follows.

Displaying all routes

Describe how to view all routes in the routing table.

Command: show route

Argument List:

Parameter type	Parameter data-type and field	Description
Name	String, <=10	Name of the route

Example:

IPDSLAM # show route			
Name	Destination	Subnet mask	GW(port no)
grape	192.168.100.36	255.255.255.255	12
banana	192.168.100.35	255.255.255.255	3
apple	192.168.100.0	255.255.255.0	1

Add a route

Describe how to add a route into the routing table.

Command: add route <name><dest><mask><port no>

Example:

```
IPDSLAM # add route best 192.168.100.55 255.255.255.255 8
name: best
dest: 192.168.100.55
mask: 255.255.255.255
port: 8
Yes or No <y/n>?
```

Delete a route

Describe how to add a route into the routing table.

Command: add route <name>

Example:

```
IPDSLAM # delete route best
name: best
Yes or No <y/n>?
```


4.7 Management Configuration

Configuring SNMP Access Parameters

Displaying SNMP

Describes how to display the information of SNMP.

Command: `show snmp`

Example: This example shows how to display the information of SNMP.

```
IPDSLAM # show snmp
1.VID: 4094
2.Community: public
```

Table 4-18 “show snmp” Field Definition

Field	Definition
VID	SNMP VID
Community	SNMP Community

Modifying SNMP

Describes how to modify the SNMP.

Command: `config snmp <community> [VID]`

Argument List:

Parameter type	Parameter data-type and field	Description
Community	String, <32	SNMP Community
VID	2 ~ 4094	VID for SNMP.

Note: The community string is case-sensitive.

Example: This example shows how to modify SNMP with community string “public” and no VID

```
IPDSLAM # config snmp public
VID: 0
community: public

Yes or No <y/n>?
```

This example shows how to modify SNMP with the configuration of community string - “private” and VID – “4025”

```
IPDSLAM # config snmp public 4025
VID: 4025
community: public

Yes or No <y/n>?
```

Configuring Trap IP

Creating Trap IP

Describes how to create the destination of trap IP.

Command: add trapdest <IP>

Argument List:

Parameter type	Parameter data-type and field	Description
IP	A.B.C.D	IP address

Note: The trap IP can be created maximum up to 5 traps.

Example: This section describes how to create the trap IP as 210.61.88.2

```
IPDSLAM # add trapdest 210.61.88.2

Yes or No <y/n>
```

Displaying SNMP Trap

Describes how to display the IP of destination that SNMP trap reached.

Command: show trapdest

Example: This example shows how to display the IP of destination that SNMP trap reached.

```
IPDSLAM # show trapdest
Trap destination IP as follows:
192.168.100.12
192.168.100.100
```

Table 4-19 "show trapdest" Field Definition

Field	Definition
IP	A.B.C.D (Max: 5 trap IP)

Deleting SNMP Trap

Describes how to delete a specific trap IP.

Command: delete trapdest <IP address>

Example: This example shows how to delete the trap IP 192.168.0.100.

```
IPDSLAM # delete trapdest 192.168.0.100
Yes or No <y/n>?
```

Configuring Management IP

Creating Management IP

Describes how to create the management IP.

Command: add manip <IP address> <mask>

Argument List:

Parameter type	Parameter data-type and field	Description
IP address	A1.A2.A3.A4	IP address
<group>	G1.G2.G3.G4	Group mask

Note:

- (1) The management IP can be created up to 5 group of IPs at most no matter you set the group mask or not.
- (2) No management IP is configured in default setting, i.e., any IP can access to your ADSL IP DSLAM

Example: This example shows how to create a group management IP and let all IPs within the range of "IP address" and "mask" able to access to your ADSL IP DSLAM.

```
IPDSLAM # add manip 192.168.100.1 255.255.255.0
Yes or No <y/n>?
```

Displaying Management IP

Describes how to display the management IP.

Command: show manip

Example: This example shows how to display existing management IP.

```
ADSL IP DSLAM # show manip
IP Address      Mask
```

192.168.0.1	255.255.255.128
192.168.100.1	255.255.255.0
210.67.0.128	255.255.255.128

Table 4-20 “show manip” Field Definition

Field	Definition
IP Address	Mask

Deleting Management IP

Describes how to delete the management IP.

Command: delete manip <IP address>

Argument List:

Parameter type	Parameter data-type and field	Description
IP address	A1.A2.A3.A4	IP address

Example: This example shows how to delete management IP group of 192.168.0.1

```
IPDSLAM # delete manip 192.168.0.1
Yes or No <y/n>?
```

4.8 IGMP configuration

Displaying IGMP Status

Describe how to show the status of IGMP.

Command: `show igmps status`

Items	Description
IGMP Snooping	Enable/Disable
Active Query	Enable/Disable
Active Query Interval	125 ~ 250 seconds

Example:

```
IPDSLAM # show igmps status

IGMP Snooping Configuration:
* IGMP Snooping      : Enable
* Dense/Sparse       : Sparse
* Active Query       : Enable
=> Query Interval : 125 Seconds.

IGMP & IP Multicast Statistics:
# Received IP multicast Frames    : 69884
# Number of Received IGMP Report : 22
# Number of Received IGMP Leave  : 0
# Number of IGMP Query Sent      : 2
```

Displaying IGMP Group

Describe how to show the status of IGMP.

Command: show igmps group

Items	Description
Group Address	IGMP group address.
Member of group	Member included in groups.

example:

```
IPDSLAM # show igmps group

IGMP Snooping Groups:
  01-00-5e-01-01-01:
    Unit 1: 1
  01-00-5e-01-01-02:
    Unit 1: 1
  01-00-5e-01-01-03:
    Unit 1: 1
  01-00-5e-01-01-04:
    Unit 1: 1
  01-00-5e-01-01-05:
    Unit 1: 1

IPDSLAM #
```

Configuring IGMP

Describe how to configure the IGMP configuration.

Command: config igmps

Example:

```
IPDSLAM #
IPDSLAM # config igmps
Enable IGMPs? (Y)es/(N)o# y
Enable Query (Y)es/(N)o# y
Query Interval 125~250 sec# 125
Enable IGMPs?: Yes
Mode: Sparse
Query: Yes
Query interval: 125 sec
Yes or No <y/n>? y
```

4.9 Performance Monitor

Displaying the Physical Layer Information

Describes how to display physical layer information of a port, or all port on CO side, remote side or both sides.

Command: `show adslphysical <all | port no.> [c | r]`

Argument List:

Parameter	Description
all port no. (c/r)	Show all information show specific port CO/Remote

Example: Display the physical layer information of port 8 on CO side.

```
IPDSLAM # show adslphysical 8 c
ATU-C:
1.InvSerialNumber: N12345678
2.InvVendorNumber: C1008
3.InvVersionNumber: 1
4. Current SNR margin: 10.5
5. Current attenuation: 0
6. Current status: NO DEFECT
7. Current output power: 8
8. Current attainable rate: 9677
```

Table 4-21 “show adslphysical” Field Definition

Field	Definition
InvSerialNumber	The serial number of the product.
InvVendorID	The ID of vendor
InvVersionNumber	The software version.
Current SNR margin	Noise margin value. (dB)
Current attenuation	Difference in the total power transmitted and the total power received by the ATU. (dB)
Current status	Current state of the ATU line.
Current output power	Total output power transmitted by the ATU. (dBm)
Current attainable rate	The maximum currently attainable data rate by the ATU. (Kbps)

Displaying the Channel Layer Information

Describes how to display the channel Layer information of a port or all ports on CO side, remote side, or both sides.

Command: `show adslchannel <all | port no.> [c | r]`

Argument List:

Parameter	Description
all port no.	Show all information show specific port
(c/r)	CO/Remote

Example: Display the channel information of port 1/8 on CO side.

```
IPDSLAM # show adslchannel 8 c
ATU-C:
1. Interleave Delay: 16
2. Previous Tx rate: 7616
2. Current Tx Rate: 8064
3. CRC Block Length: 544
```

Table 4-22 "show adslchannel" Field Definition

Field	Definition
Interleave Delay	Interleave delay for this channel. (mili-seconds)
Previous Tx Rate	Previous actual transmit rate on this channel if ADSL loop retrain. (Kbps)
Current Tx Rate	Actual transmit rate on this channel. (Kbps)
CRC Block Length	The length of the channel data-block on which the CRC operates.

Displaying Physical Performance Statistics within Current 15 Minutes and 1 Day Duration

Describes how to display the physical performance statistics of a port or all port on CO side, remote side, or both sides during current 15 minutes and a day duration.

Command: `show adslphperf <all | port no.> [c | r]`

Argument List:

Parameter	Description
all port no.	Show all information show specific port
(c/r)	CO/RT

Example: Display the physical performance of port 8 on remote side during current 15 minutes and 1-day duration.

```
IPDSLAM # show adslphperf 8 r
ATU-R
1. Lofs: 0
2. Loss: 0
3. Lprs:0
4. Ess: 2
5. Current 15-min time elapsed: 105
6. Current 15-min Lofs: 0
7. Current 15-min Loss: 0
8. Current 15-min Lprs: 0
9. Current 15-min Ess: 2
10.Current 1-day time elapsed: 7560
11.Current 1-day Lofs: 34
12.Current 1-day Loss: 23
13.Current 1-day Lprs: 0
14.Current 1-day Ess: 89
```

Table 4-23 “show adslphperf” Field Definition

Field	Definition
ATU-C	CO: Down Stream
ATU-R	RT: Up Stream
Lofs	Number of Lof failures since reset.
Loss	Number of Los failures since reset.
Lols	Number of Lol failures since reset.
Lprs	Number of Lpr failures since reset.
Ess	Number of errored seconds since reset.
Init	Number of Initialization attempts since reset. It includes both successful and failed attempts.
Current 15-min time elapsed	Number of seconds that have elapsed within the current 15 minutes. A full interval is 900 seconds.
Current 15-min Lofs	Number of seconds in the current 15-minute interval during which Lof was detected.
Current 15-min Loss	Number of seconds in the current 15-minute interval during which Los was detected.
Current 15-min Lols	Number of seconds in the current 15-minute interval during which Lol was detected.
Current 15-min Lprs	Number of seconds in the current 15-minute interval during which Lpr was detected.
Current 15-min Ess	Number of errored seconds in the current 15-minute interval.
Current 15-min Init	Number of Init in the current 15-minute interval. It includes both successful and failed attempts.
Current 1-day time elapsed	Number of seconds that have elapsed since the beginning of the current 1-day interval.
Current 1-day Lofs	Number of seconds in the current 1 day interval during which Lof was detected.
Current 1-day Loss	Number of seconds in the current 1 day interval during which Los was detected.
Current 1-day Lols	Number of seconds in the current 1 day interval

Field	Definition
	during which Lol was detected.
Current 1-day Lprs	Number of seconds in the current 1 day interval during which Lpr was detected.
Current 1-day Ess	Number of errored seconds in the current 1 day interval.

Displaying Channel Performance Statistics within Current 15 Minutes and 1 Day Duration

This section describes how to display the channel performance statistics of a port of all port on CO side, remote side or both sides during current 15 minutes and 1 day duration.

Command: `show adslchperf <all | port no.> [c | r]`

Argument List:

Parameter	Description
all port no.	Show all information show specific port
(c/r)	CO/Remote

Example: This example shows the channel performance of port 8 on remote side during current 15 minutes and 1-day duration.

```
IPDSLAM # show adslchperf 8 r
ATU-R:
1. In octets: 561852545
2. Out octets: 521658458
3. In error blocks: 2308
4. Out error blocks: 1205
5. Received blocks: 8562145
6. Transmitted blocks: 8562145
7. Corrected blocks: 23650
8. Uncorrected blocks: 2308
9. Current 15-min time elapsed: 610
10. Current 15-min received blocks: 568598
11. Current 15-min transmitted blocks: 568598
12. Current 15-min corrected blocks: 362
13. Current 15-min uncorrected blocks: 15
14. Current 1-day time elapsed: 3056
15. Current 1-day received blocks: 9595665
16. Current 1-day transmitted blocks: 9595665
17. Current 1-day corrected blocks: 3566
18. Current 1-day uncorrected blocks: 2100
```

Table 4-24 “show adslchperf” Field Definition

Field	Definition
In octets	The total number of bytes received since the last agent reset.
Out octets	The total number of bytes transmitted since the last agent reset.
In error blocks	The total number of blocks received with errors since the last agent reset.
Out error blocks	The total number of blocks transmitted with errors since the last agent reset.
Received blocks	The total number of blocks of data received since the last agent reset.
Transmitted blocks	The total number of blocks of data transmitted since the last agent reset.
Corrected blocks	Number of corrected blocks of data transmitted since the last agent reset.
Uncorrected blocks	Number of uncorrected blocks of data transmitted since the last agent reset.
Current 15-min time elapsed	Number of seconds that have elapsed since the start of the current 15-minute interval.
Current 15-min received blocks	Number of blocks of data received during the current 15-minute interval.
Current 15-min transmitted blocks	Number of blocks of data transmitted during the current 15-minute interval.
Current 15-min corrected blocks	Number of corrected blocks of data transmitted during the current 15-minute interval.
Current 15-min uncorrected blocks	Number of uncorrected blocks of data transmitted during the current 15-minute interval.
Current 1-day time elapsed	Number of seconds that have elapsed since the start of the current day interval.
Current 1-day received blocks	Number of blocks of data received during the current day interval.
Current 1-day transmitted blocks	Number of blocks of data transmitted during the current day interval.
Current 1-day corrected blocks	Number of corrected blocks of data transmitted during the current day interval.
Current 1-day uncorrected blocks	Number of uncorrected blocks of data transmitted during the current day interval.

Displaying Physical Performance Statistics during Previous 15 Minutes or 1 Day Duration

Describes how to display the physical performance of a port or all port on CO side, remote side or both sides during previous 15 minutes or 1-day duration. For 15 minutes duration, the system collects and displays up to 1-day interval and for 1-day duration, the system only collect and display up to 1week interval.

Command: `show adslphintl < port no.> <15min | 1day> [c | r]`

Argument List:

Parameter	Description
unit no. / port no.	Port ID
15min / 1day	Interval
(c/r)	CO/Remote

Example: This example shows how to display the physical performance of port 8 on CO side during previous 1-day duration.

IPDSLAM # show adslphintl 8 1-day c						
Unit 1 / Port 8						
ATU-C side (seconds):						
No.	Lofs	Loss	Lols	Lprs	Ess	Inits
1	50	38	12	0	267	0
...
7

Table 4-25 “show adslphintl” Field Definition

Field	Definition
Lofs	Counts of Lof since agent reset within previous 15-min or 1-day interval.
Loss	Counts of Los since agent reset within previous 15-min or 1-day interval.
Lols	Counts of Lol since agent reset within previous 15-min or 1-day interval. (But only at ATU-C side)
Lprs	Counts of Lpr since agent reset within previous 15-min or 1-day interval.
Ess	Counts of ES since agent reset within previous 15-min or 1-day interval.
Inits	Counts of ADSL line initialization attempts since agent reset, including both successful and failed attempts within previous 15-min or 1-day interval.(Only at ATU-C side)

Displaying Channel Performance Statistics during Previous 15 Minutes or 1 Day Duration

Describes how to display the channel performance of a port or all port on CO side, remote side, or both sides during previous 15 minutes or 1day duration. For 15 minutes duration, the system collects and displays up to 1day interval and for 1day duration, the system collects and displays up to 1week interval.

Command: `show adslchintl < port no.><15min | 1day> [c | r]`

Argument List:

Parameter	Description
port no.	Port ID
15min / 1day	Previous 15 min or 1 day Interval
(c/r)	CO (Down Stream) / Remote (Up Stream)

Example: This example shows how to display the channel performance of port 8 on CO side during previous 15 minutes duration.

IPDSLAM # show adslchintl 8 15min c				
Port 8				
ATU-C side (blocks):				
No.	Received	Transmitted	Corrected	Uncorrected
1	15215	25835	256	28
	
16

Table 4-26 "show adslchintl" Field Definition

Field	Definition
Received	The total number of blocks of data received during the previous 15min or 1day interval.
Transmitted	The total number of blocks of data transmitted during the previous 15min or 1day interval.
Corrected	Number of corrected blocks of data transmitted during the previous 15min or 1 day interval.
Uncorrected	Number of uncorrected blocks of data transmitted during the previous 15min or 1 day interval.

4.10 Ethernet Rate Mode Configuration

Show Ethernet Rate Mode

Describe how to show Ethernet rate mode

Command: `show ethermode`

Example:

```
IPDSLAM # show ethermode  
  
Ethermode: auto
```

Modifying Ethernet Rate Mode

Describe how to configure Ethernet rate mode.

Command: `config ethermode<auto | 10f | 10h 100f | 100h>`

Argument List:

Parameter	Description
Auto	Select Ethernet rate mode automatically
10f	10 Base Full Duplex
10h	10 Base Half Duplex
100f	100 Base Full Duplex
100h	100 Base Half Duplex

Example:

```
IPDSLAM # config ethermode 10f  
  
Ethermode —>10 Base Full Duplex
```

4.11 DHCP Server Configuration

DHCP allows hosts on a TCP/IP network to request and be assigned IP address, and also to discover information about the network to which they are attached. The following sections describe how to show and modify DHCP host's configuration.

Show DHCP Sever Configuration

Describe how to show DHCP sever configuration.

Command: show dhcpd

Example:

```
IPDSLAM # show dhcpd

Allow bootp;
Allow unknown-clients;
Subnet 192.168.100.0 netmask 255.255.255.0 {
Range 192.168.100.1 192.168.100.20; }
IPDSLAM #
IPDSLAM #
```

Table 4-27 "show dhcpd" Field Definition

Field	Definition
bootp	Internet Bootstrap protocol
Submask	Submask of system.

Modifying DHCP Server

Describe how to modify DHCP sever configuration.

Command: config dhcpd [on| off] [Submask IP] [pool upper bound] [pool lower bound] [Default Gateway]

Argument List:

Parameter	Description
Pool upper bound	Upper bound of a pool of IP address for its network
Pool lower bound	lower bound of a pool of IP address for its network
Default Gateway	Gateway IP

Example:

```

IPDSLAM # config dhcpd on 255.255.255.0 192.168.100.2
192.168.100.22

Subnet mask 255.255.255.0
Upper bound: 192.168.100.2
Lower bound: 192.168.100.22
Yes or No <y/n>? y
IPDSLAM #
IPDSLAM #

```

4.12 Configuring User Account

Creating User Account

Describes how to create a user account and setting his privilege.

Command: add user <user name>

Argument List:

Parameter type	Parameter data-type and field	Description
user name	String, <= 16	User name (login account)
Administrator operator guest	Administrator/operator/guest	User privilege
password	String, <=8	The user's password

Note: There are three privilege levels. (Total 5 accounts)

User Account	Characteristics
Administrator	Those who have the highest privilege to configure the whole System but do not have the privilege to delete the default "Admin" account.
Operator	Those who can execute all commands except creating a new user account, modifying and deleting the Administrator accounts as well as modifying time of the system.
Guest	Those who can execute only "show" command.

Example: This example shows how to create the user named "Bill" who has the privilege of Administrator.

```

IPDSLAM # add user bill Administrator
Password:*****
Confirm : *****

Yes or No <y/n>?

```


Modifying User Account

Describes how to modify existing user account.

Command: `config user <user name> <Administrator | operator | guest>`

Argument List:

Parameter type	Parameter data-type and field	Description
user name	String, <= 16	User name (login account)
Administrator operator guest	Administrator/operator/guest	User privilege
password	String, <=8	The user's password

Example: This example shows how to modify Bill's privilege of Administrator to operator.

```
IPDSLAM # config user bill operator
New password:*****
Confirm password:*****

Yes or No <y/n>?
```

Note: Only Administrator can modify the other's privilege and password.

Displaying the Information of User Account

Describes how to view the information of existing user account.

Command: `show user`

Example: This example shows how to display the information of user Smart.

IPDSLAM # show user		
No	User name	Privilege
1	Admin	Administrator
2	bill	operator
3	guest1	guest

4.13 Deleting User Account

Describes how to delete a user account.

Command: delete user <user name>

Argument List:

Parameter type	Parameter data-type and field	Description
User name	None	User account

Example: This example shows how to delete the user account guest1.

```
IPDSLAM # delete user guest1  
  
Yes or No <y/n>?
```

Note: You can't delete your own account.

Configuration Backup and Restore

6

This chapter describes how to back up your user configuration from ADSL IP DSLAM onto your computer and restore them from computer to ADSL IP DSLAM using configuration file “sf_user.cfg”. This chapter will cover the description of control files used in TFTP operation and process of backing up and restoring:

Configuration File “sf_user.cfg”

The configuration “sf_user.cfg” is for ADSL ports, bridge and SNMP settings. As soon as you restore it in ADSL IP DSLAM, it can be applied the next time ADSL IP DSLAM is booted.

Control Files used in TFTP Operation

In TFTP operation, you may require some specific files to achieve authentication functions. They will be provided with a CD in the packing. Listed bellows are the control files used in TFTP operation:

tftplock.key : The file contains the SNMP write community string (password)
tftputil.bat : The utility file designed for user to back up and restore easily.

Note:

- (1) You can follow the following procedures of configuration backup and configuration restore in Windows 2000 and Windows NT system, whereas you should have tftp.exe in other Windows system.
- (2) Before you back up or restore the configuration file “sf_user.cfg”, make sure if those two control files and configuration file are in same directory.

Configuration Backup

This section describes how to back up your configuration settings form ADSL IP DSLAM to computer. The following procedures will help you to back up configuration:

Step 1: Open a terminal emulation interface in order to execute CLI.

Step 2: Enter the command “upgrade enable” in Command Line Interface for

executing TFTP to ADSL IP DSLAM.

Example

```
IPDSLAM# upgrade enable
Yes or No <y/n>? y
System is in the "upgrade" mode now. You could start to upgrade the
system file.
```

Note: This step can be skipped, in case of without Ethernet-VLAN on each port.

Step 3: Enter the command "show sysip" to get the <IP address> of ADSL IP DSLAM. If you already know the IP address, you can skip this step.

Example

```
IPDSLAM# show sysip
IP: 192.168.10.2
Submask: 255.255.255.0
Gateway: 192.168.10.1
```

Note: Make sure that the system IP and your computer is in the same subnet.

Step 4: Open another window interface, e.g., MS-DOS interface.

Step 5: Enter the command "tftputil <IP address> <get> <sf_user.cfg>" under the directory of configuration file and control files.

Example:

```
c:\> tftputil 192.168.10.2 get sf_user.cfg
```

When uploading, three LEDs, "MAINT" "ALARM" and "FAULT", will blink. Unless you finish uploaded, do not shut down ADSL IP DSLAM.

Step 6: Restart the system in terminal emulation interface. The system will restart according to your "sf_user.cfg".

Example

```
IPDSLAM# restart
Yes or No <y/n>?
System is restarting now.Wait.....
```

5.1 Configuration Restore

Describes how to restore your configuration settings from computer to ADSL IP DSLAM. The following procedures will help you to restore configuration:

Step 1: Open the hyber terminal interface in order to execute CLI.

Step 2: Enter the command "show sysip" to get the <IP address> of ADSL IP

DSLAM. If you already know the IP address, you can skip this step.

Example

```
IPDSLAM# show sysip
IP: 192.168.10.2
Submask: 255.255.255.0
Gateway: 192.168.10.1
```

Note: Make sure that the system IP and your computer is in the same subnet.

Step 3: Enter the command “tftputil <IP address> <get> <sf_user.cfg>” in dos interface.

Example:

```
c:\> tftputil 192.168.10.2 put sf_user.cfg
```

When uploading, three LEDs, “MAINT” “ALARM” and “FAULT”, will blink. Unless you finish uploaded, do not shut down ADSL IP DSLAM.

Step 4: Restart the system in the hyber terminal interface. The system will restart according to your “sf_user.cfg”.

Example

```
IPDSLAM# restart

Yes or No <y/n>?

System is restarting now.Wait.....
```

5.2 ADSL IP DSLAM upgrade procedure

This section describes how to upgrade the software of your ADSL IP DSLAM.

Step 1: connect your PC with the UPLINK port of ADSL IP DSLAM by using an Ethernet cable.

Step 2: Prepare an new ADSL IP DSLAM software (filename, IP16s_TFTP_V243_DLINK.BIN, is taken as an example here) and the TFTP utility.

Step 3: Extract the TFTP utility, "tftp.zip", into one directory of your PC.

Step 4: Rename the filename "IP16s_TFTP_V243_NoBrand.BIN" as "ipam" and put into the same directory with TFTP.

Step 5: Log in CLI by using a RS-232 cable and type the command "sysip" to access the IP address of ADSL IP DSLAM. (This step can be skipped if the IP address of ADSL IP DSLAM has been available).

Step 6: Activate the "MS-DOS mode" and enter the directory that you made for TFTP utility.

Step 7: Key in the following command to upgrade your ADSL IP DSLAM:
C:\TFTP\tftputil 192.168.100.111 put adsl

```
C:\TFTP\tftputil 192.168.100.111 put ipam
Transfer successful: 8 bytes in 1 second, 8 byte/s
Transfer successful: 2097152 bytes in 91 seconds, 23045 byte/s
C:\TFTP\tftputil
C:\TFTP\tftputil
```

Step 8: After entering this command, ADSL IP DSLAM will be processing upgrade immediately. When ADSL IP DSLAM is upgrading, LED, "MAINT" "ALARM" and "FAULT", will be blinked. It takes 20 seconds to complete upgrade if there is no power off during the procedure.

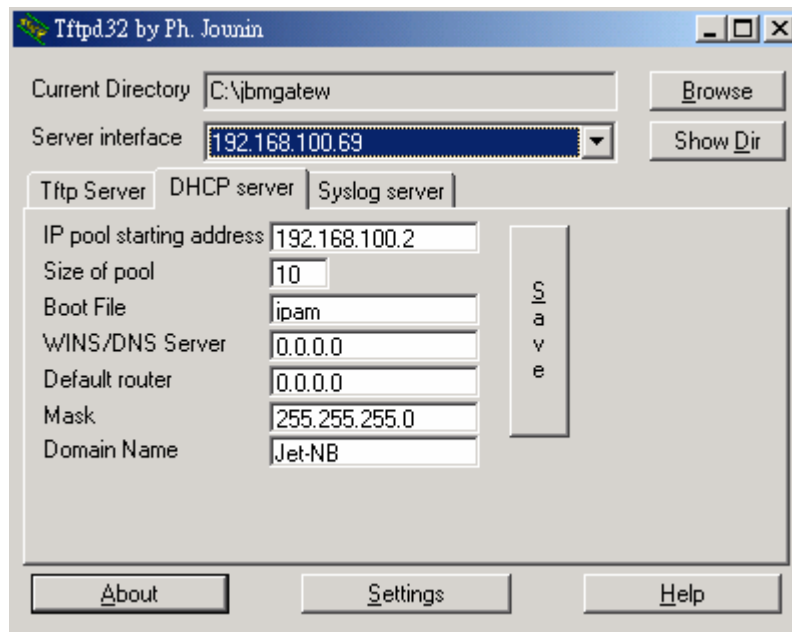
Step 9: Once those 3 LEDs stop blinking, the software upgrade is completed and ADSL IP DSLAM will restart automatically.

Step 10: Enter ADSL IP DSLAM CLI again and type the command, "show sysinfo" to verify the software version. The version shall be "2.43"

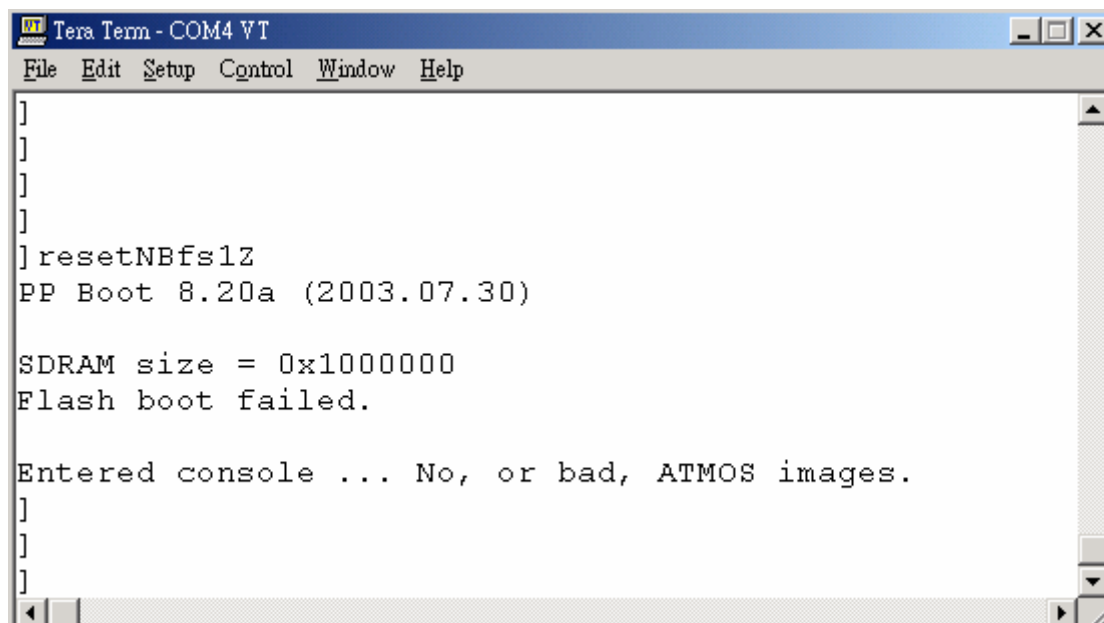
5.3 IP DSLAM rescue procedure while system crashed

If you suffer the system crash while operating your G.SHDSL IP DSLAM, please follow the following steps to rescue your system. Please note that only IP DSLAM s/w version 3.0 or above is supported.

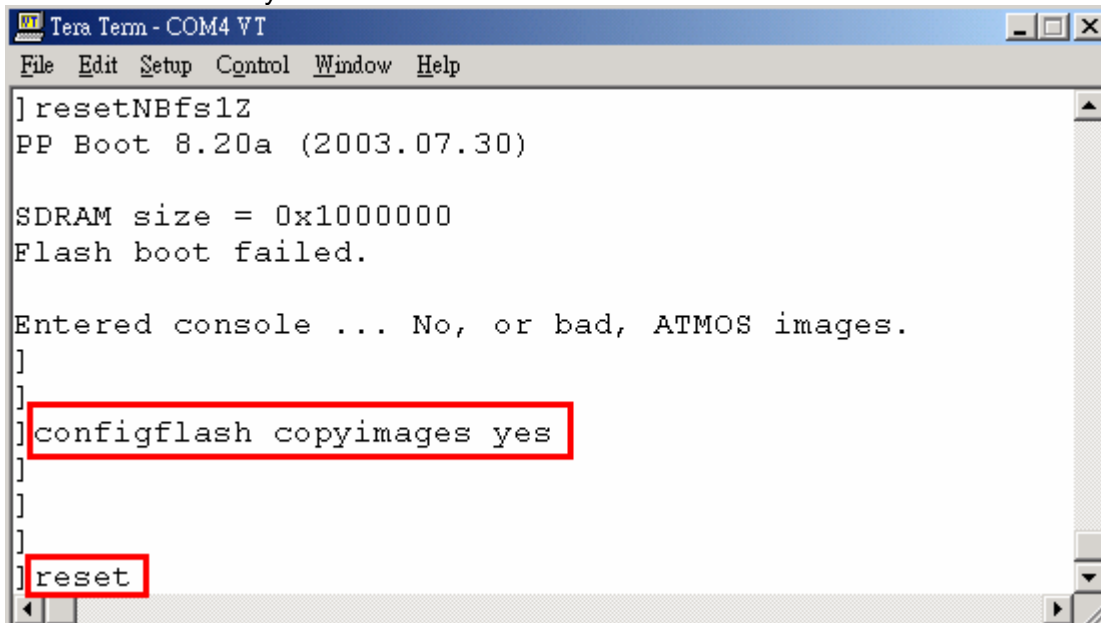
Step 1: Setup the DHCP server on PC and copy the software image in the same directory, rename as "ipam".



Step 2: Open console of IP-DSLAM.



Step 3: Enter command, "configflash copyimages yes".
Then reset system.



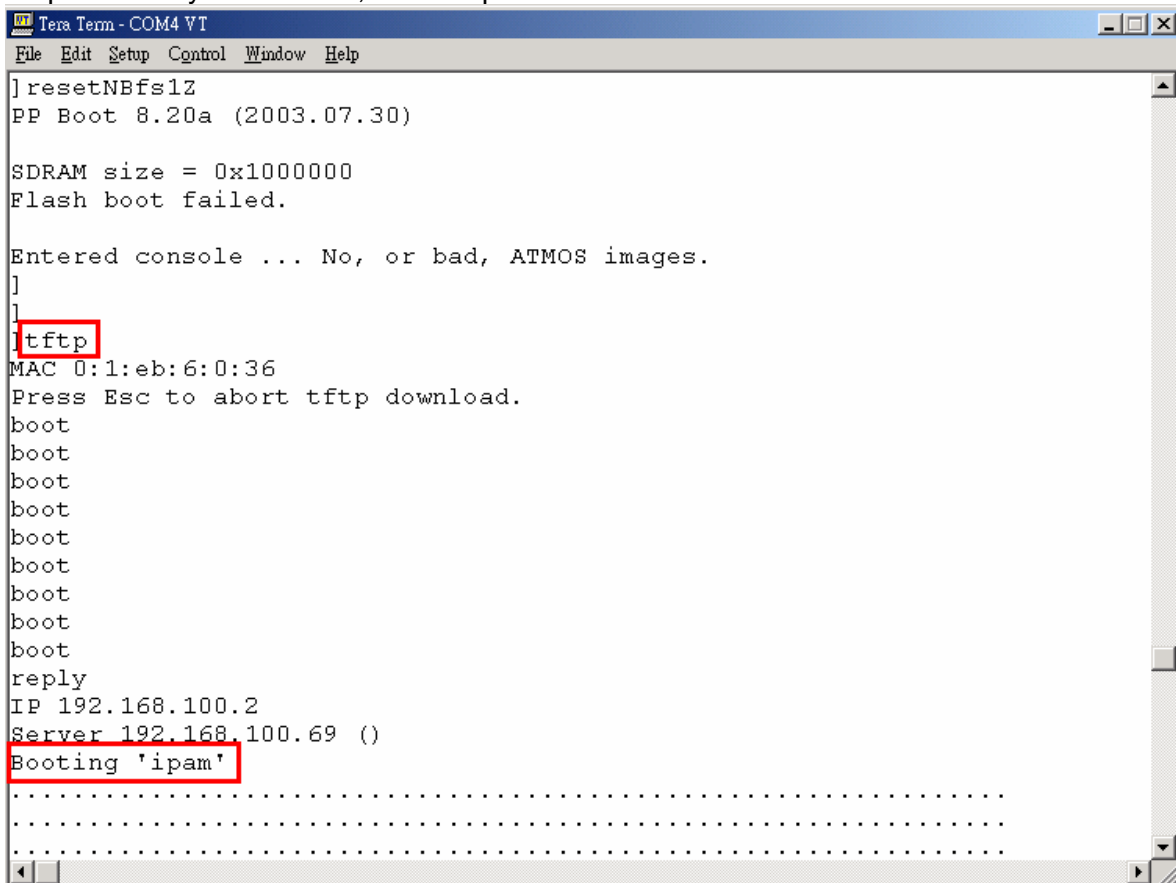
```
Tera Term - COM4 VT
File Edit Setup Control Window Help

]resetNBfs1Z
PP Boot 8.20a (2003.07.30)

SDRAM size = 0x10000000
Flash boot failed.

Entered console ... No, or bad, ATMOS images.
]
]
]configflash copyimages yes
]
]
]reset
```

Step 4: After system reboot, enter "tftp" to enable TFTP client in IP-DSLAM.

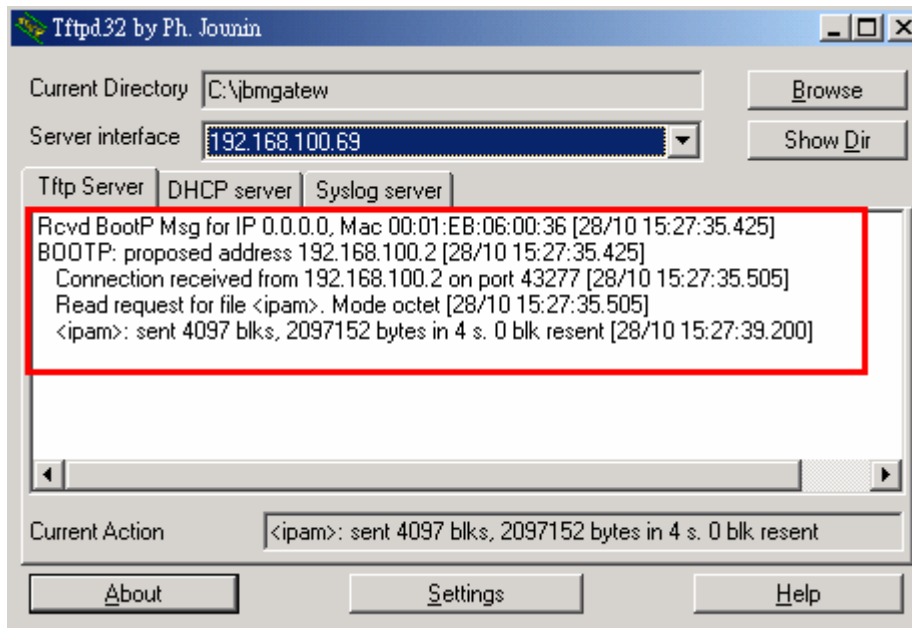


```
Tera Term - COM4 VT
File Edit Setup Control Window Help

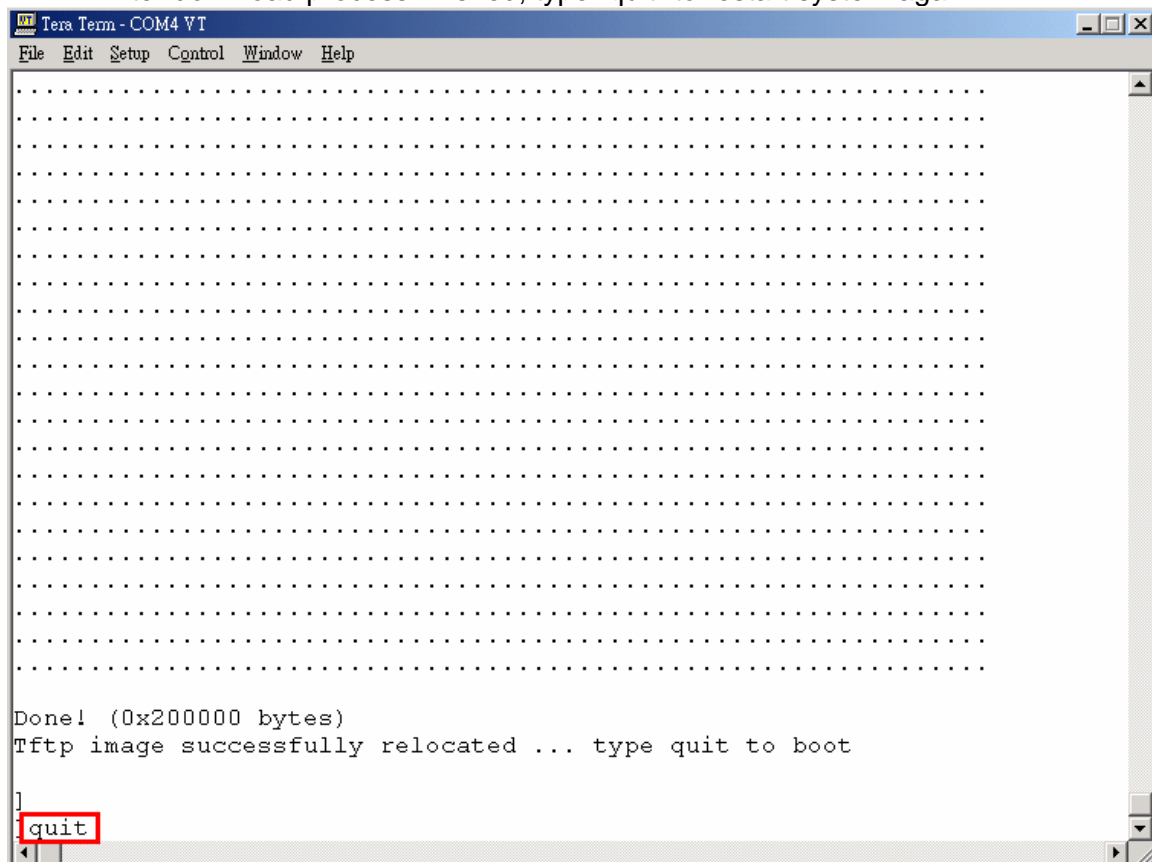
]resetNBfs1Z
PP Boot 8.20a (2003.07.30)

SDRAM size = 0x10000000
Flash boot failed.

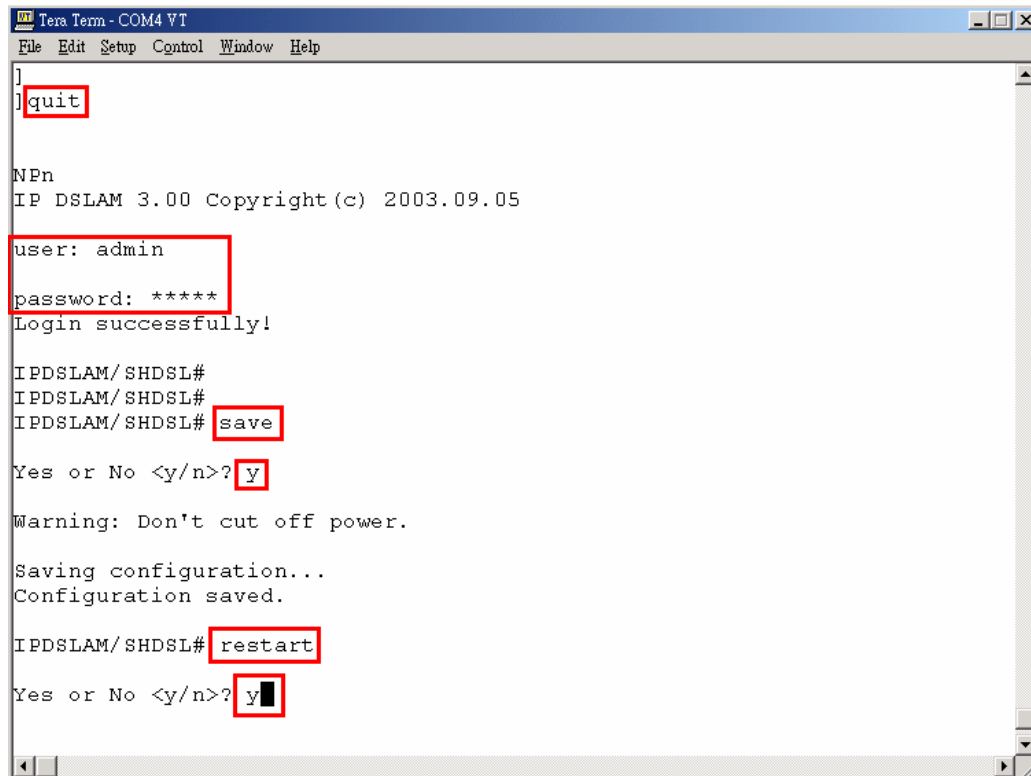
Entered console ... No, or bad, ATMOS images.
]
]
]tftp
MAC 0:1:eb:6:0:36
Press Esc to abort tftp download.
boot
boot
boot
boot
boot
boot
boot
boot
boot
boot
reply
IP 192.168.100.2
Server 192.168.100.69 ()
Booting 'ipam'
```



Step 5: IP-DSLAM will be assigned IP from DHCP server then get the software from PC.
After download process finished, type "quit" to restart system again.



Step 6: Login system by user name and password. Enter "save" to save software into Flash.
After save process finished (It takes about 30 seconds), enter "restart" to restart system.



```
Tera Term - COM4 VT
File Edit Setup Control Window Help

]
]quit

NPN
IP DSLAM 3.00 Copyright (c) 2003.09.05

user: admin
password: *****
Login successfully!

IPDSLAM/SHDSL#
IPDSLAM/SHDSL#
IPDSLAM/SHDSL# save

Yes or No <y/n>? y

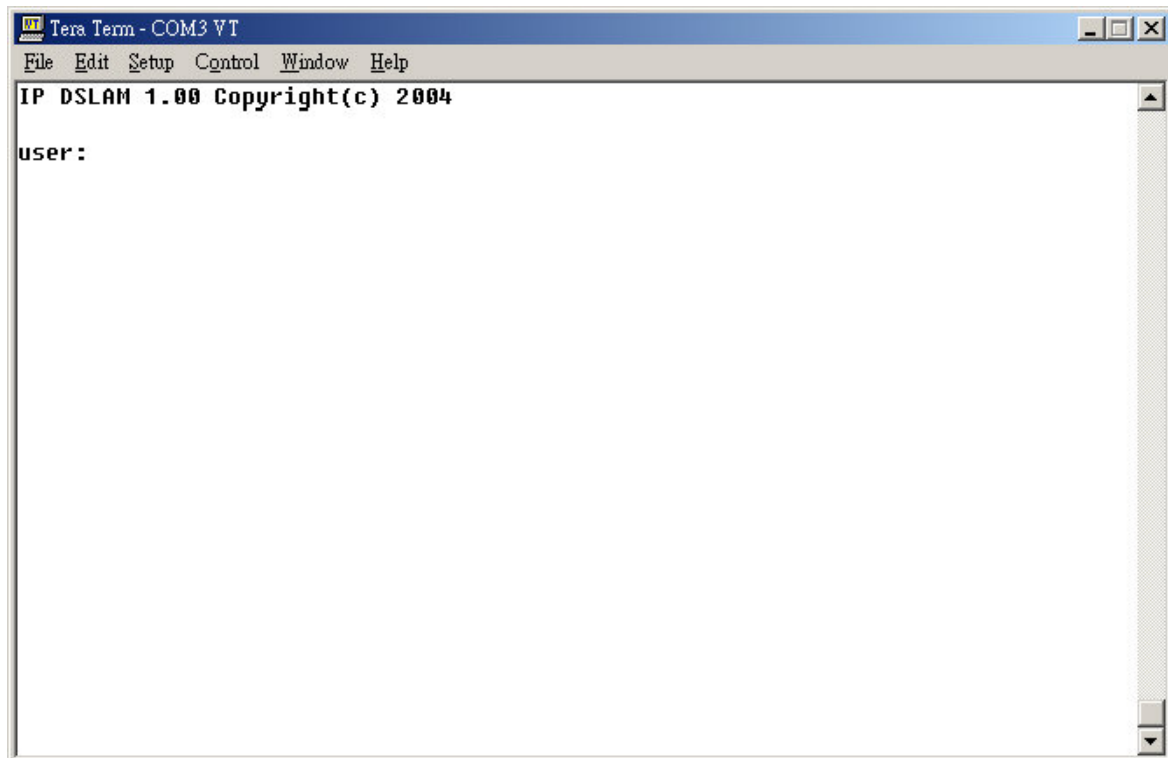
Warning: Don't cut off power.

Saving configuration...
Configuration saved.

IPDSLAM/SHDSL# restart

Yes or No <y/n>? y
```

When the following screen appears, the whole procedure is completed and your system will work again.



```
Tera Term - COM3 VT
File Edit Setup Control Window Help

IP DSLAM 1.00 Copyright(c) 2004

user:
```

Troubleshooting

7

This chapter describes some potential problems and possible remedies and helps you diagnose and solve the problems. It includes the problems of:

- **Problems with Starting Up ADSL IP DSLAM**

This section describes the corrective actions of the problems with LED(s), data transmission and console port.

- **Problems with Configuration**

This section describes how to solve the problems of your ADSL IP DSLAM doesn't work with configured settings.

- **Problems with SNMP**

This section describes how to solve the problem of getting information from ADSL IP DSLAM to SNMP manager server.

- **Problems with Telnet**

This section describes how to solve the problem of being unable to telnet to your ADSL IP DSLAM.

- **Problems with Password**

This section describes how to solve the problem of forgetting password.

Problems with Starting up ADSL IP DSLAM

Table 7-1 Troubleshooting the Start-up your ADSL IP DSLAM

Problems	Steps to Take
None of the LED(s) are on	<ol style="list-style-type: none"> 1. Check all cables connection. 2. If the LEDs remain off, contact for technical support.
The LED(s) are on, but data can not be transmitted	<ol style="list-style-type: none"> 1. Check if all cables are well connected. 2. Check the PVC(vpi/vci) settings in CPE side. See Appendix-C for the default setting of ADSL IP DSLAM. 3. Ping the ADSL IP DSLAM from the user's computer. 4. If you cannot ping, connect the ADSL modem or router to another port on ADSL IP DSLAM. If the ADSL modem or router works with a different port, then there may be a problem with the original port. Contact for technical support. 5. IF connecting with different port does not work, try a different ADSL modem or router with the original port. 6. IF the problem still remains unsolved, contact for technical support.
You cannot access the command "tftputil <IP address> <get> <sf_user.cfg>" in windows interface ADSL IP DSLAM via the console port	<ol style="list-style-type: none"> 1. Check if the ADSL IP DSLAM is connected to your computer's serial port 2. Check if the communication program is configured correctly. Pls. Refer to "Logging into the Command Line Interface" section on page 17. 3. If the problem remains unsolved, contact for technical support.

Problems with Configuration

Table 7-2 Troubleshooting the ADSL IP DSLAM configured setting

Problems	Steps to Take
Your configuration settings do not take effect at restart	<ol style="list-style-type: none"> 1. Use the command: save to save your configuration before you restart the ADSL IP DSLAM. (See "Saving the system" section on page 61) 2. If the above corrective action doesn't work, contact for technical support.

Problems with SNMP

Table 7-3 Troubleshooting the SNMP server

Problems	Steps to Take
The SNMP manager server can not get information from ADSL IP DSLAM	<ol style="list-style-type: none">1. Check to see that the community in the ADSL IP DSLAM matches the SNMP server's community.2. If the above corrective action doesn't work, contact for technical support.

Problems with Telnet

Table 7-4 Troubleshooting Telnet

Problems	Steps to Take
You cannot telnet into the ADSL IP DSLAM	<ol style="list-style-type: none">1. Make sure that telnet session is not already operating. The ADSL IP DSLAM will only accept one telnet session at a time.2. Ping the ADSL IP DSLAM from your computer. If you are able to ping the ADSL IP DSLAM but are still unable to telnet, contact the distributor. If you cannot ping the ADSL IP DSLAM, check the IP address in the ADSL IP DSLAM and your computer. Make sure that both IP addresses are located in the same subnet.3. If the above corrective actions don't work, contact for technical support.

Problems with Password

Table 7-5 Troubleshooting the password

Problems	Steps to Take
You forgot the password	Restore the configuration file "sf_user.cfg". All settings will return to the configuration as "sf_user.cfg", so any configuration you have made in CLI will be lost. If the above corrective actions don't work, contact for technical support.

Appendix-A: Pin Assignment

CID Pin Assignment

The CID port is configured as DCE. The connection for such link is given below:

Table A-1 ADSL IP DSLAM CID port pin assignment

Pin no.	Usage
1	-----
2	RD
3	TD
4	DTR
5	GND
6	DSR
7	RTS
8	-----
9	-----

Note: Connector type is DB9 male

Table A-2 Null modem cable pin assignment (for PC to CID port connection)

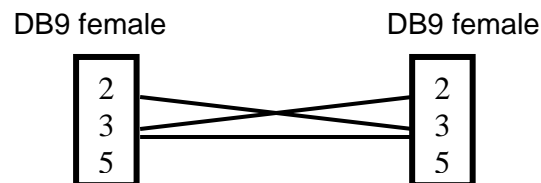


Table A-3 ADSL IP DSLAM uplink port pin assignment

Pin no.	Usage
1	TX+
2	TX-
3	RX+
4	-----
5	-----
6	RX-
7	-----
8	-----

Note: Connector type is RJ-45

Table A-4 Uplink and downlink port (Xn) pin assignment

Pin no.	Usage
1	TX+
2	TX-
3	RX+
4	-----
5	-----
6	RX-
7	-----
8	-----

Note:

- (1) Ports are auto-crossover
- (2) Connector type is RJ 45

Transceiver connector pin assignment

Table A-5 8 ports ADSL LINE Connector pin assignment

PIN #	usage	PIN#	usage
1	ADSL loop#1-T	26	ADSL loop#1-R
2	ADSL loop#2-T	27	ADSL loop#2-R
3	ADSL loop#3-T	28	ADSL loop#3-R
4	ADSL loop#4-T	29	ADSL loop#4-R
5	ADSL loop#5-T	30	ADSL loop#5-R
6	ADSL loop#6-T	31	ADSL loop#6-R
7	ADSL loop#7-T	32	ADSL loop#7-R
8	ADSL loop#8-T	33	ADSL loop#8-R
9	:	34	:
:	:	:	:
25	:	50	:

Note: Connector type is 50 pin teleco-champ female

Table A-6 8 ports POTS splitter PHONE Connector pin assignment

PIN #	usage	PIN#	usage
1	PHONE#1-T	26	PHONE#1-R
2	PHONE#2-T	27	PHONE#2-R
3	PHONE#3-T	28	PHONE#3-R
4	PHONE#4-T	29	PHONE#4-R
5	PHONE#5-T	30	PHONE#5-R
6	PHONE#6-T	31	PHONE#6-R
7	PHONE#7-T	32	PHONE#7-R
8	PHONE#8-T	33	PHONE#8-R
9	:	34	:
:	:	:	:

25	:	50	:
----	---	----	---

Note: Connector type is 50 pin teleco-champ female

Appendix-B The SNTP timezone abbreviation

Abbreviation	+ UTC	World Area of Time Zone
IDLW	-1200	International Date Line West
NT	-1100	Nome
HST	-1000	Hawaii Standard
CAT	-0900	Central Alaska
AHST	-0900	Alaska-Hawaii Standard
YST	-0900	Yukon Standard
HDT	-0900	Hawaii Daylight
YDT	-0800	Yukon Daylight
PST	-0800	US Pacific Standard
PDT	-0700	US Pacific Daylight
MST	-0700	US Mountain Standard
MDT	-0600	US Mountain Daylight
CST	-0600	US Central Standard
CDT	-0500	US Central Daylight
EST	-0500	US Eastern Standard
EDT	-0400	US Eastern Daylight
AST	-0400	Atlantic Standard
NFST	-0330	Newfoundland Standard
NFT	-0330	Newfoundland
BRST	-0300	Brazil Standard
ADT	-0300	Atlantic Daylight
NDT	-0230	Newfoundland Daylight
AT	-0200	Azores
WAT	-0100	West Africa
GMT	+0000	Greenwich Mean
UTC	+0000	Universal (Coordinated)
WET	+0000	Western European
CET	+0100	Central European

FWT	+0100	French Winter
MET	+0100	Middle European
MEWT	+0100	Middle European Winter
SWT	+0100	Swedish Winter
BST	+0100	British Summer
EET	+0200	Eastern Europe, USSR Zone 1
FST	+0200	French Summer
MEST	+0200	Middle European Summer
SST	+0200	Swedish Summer
IST	+0200	Israeli Standard
IDT	+0300	Israeli Daylight
BT	+0300	Baghdad, USSR Zone 2
IT	+0330	Iran
ZP4	+0400	USSR Zone 3
ZP5	+0500	USSR Zone 4
INST	+0530	Indian Standard
ZP6	+0600	USSR Zone 5
NST	+0630	North Sumatra
WAST	+0700	West Australian Standard
SSMT	+0700	South Sumatra, USSR Zone 6
JT	+0730	Java
CCT	+0800	China Coast, USSR Zone 7
WADT	+0800	West Australian Daylight
ROK	+0900	Korean Standard
KST	+0900	Korean Standard
JST	+0900	Japan Standard, USSR Zone 8
CAST	+0930	Central Australian Standard
KDT	+1000	Korean Daylight
EAST	+1000	Eastern Australian Standard
GST	+1000	Guam Standard, USSR Zone 9
CADT	+1030	Central Australian Daylight
EADT	+1100	Eastern Australian Daylight

IDLE	+1200	International Date Line East
NZST	+1200	New Zealand Standard
NZT	+1200	New Zealand
NZDT	+1300	New Zealand Daylight

Appendix-C The Default Setting of ADSL IP DSLAM

Default Settings	
SNMP	community : "public" no In-band management channel
IP	IP : 192.168.100.111 Mask: 255.255.255.0 Gateway: 192.168.100.1
System	Bridge – mode Port-Filter(Port-based VLAN) : Enable
ADSL Port	"up" for all ports
VCC connection	8/81(vpi/vci) for all ports VLAN – tag : disable
DSL profile	named "DEFAULT" 1) tx mode : "adaptAtStartup" 2) Line type : "Interleaved" 3) Target SNR margin : "6 dB" 4) mim tx rate : "32 Kbps" 5) max tx rate at ATU-C : "8064 Kbps" 6) max tx rate at ATU-R : "1024 Kbps". 7) interleave delay : "16 milliseconds"
Alarm profile	named "DEFAULT" ATU-C side: Thresh15MinLofs – 0 sec Thresh15MinLoss – 0 sec Thresh15MinLols – 0 sec Thresh15MinLprs – 0 sec Thresh15MinEss – 0 sec initial failure trap – Enable ATU-R side : Thresh15MinLofs – 0 sec Thresh15MinLoss – 0 sec Thresh15MinLols – 0 sec Thresh15MinLprs – 0 sec

Glossary

AAL

ATM adaptation layer. Service-dependent sublayer of the data link layer. The AAL accepts data from different applications and presents it to the ATM layer in the form of 48-byte ATM payload segments. AALs consist of two sublayers: CS and SAR. AALs differ on the basis of the source-destination timing used (CBR or VBR) and whether they are used for connection-oriented or connectionless mode data transfer. At present, the four types of AAL recommended by the ITU-T are AAL1, AAL2, AAL3/4, and AAL5.

AAL5

ATM adaptation layer 5. One of four AALs recommended by the ITU-T. AAL5 supports connection-oriented VBR services and is used predominantly for the transfer of classical IP over ATM and LANE traffic. AAL5 uses SEAL and is the least complex of the current AAL recommendations. It offers low bandwidth overhead and simpler processing requirements in exchange for reduced bandwidth capacity and error-recovery capability. See also *AAL*.

ADSL

Asymmetric digital subscriber line. ADSL is designed to deliver more bandwidth downstream (from the central office to the customer site) than upstream. Downstream rates range from 1.5 to 9 Mbps; upstream bandwidth ranges from 16 kbps to 1 Mbps. ADSL transmissions work at distances up to 18,000 feet over a single copper wire twisted pair. See also *DSL*.

Agent

Generally, software that processes queries and returns replies on behalf of an application. In the context of network management, an agent is a process that resides in all managed devices, and stores management data and responds to the manager's data requests.

ATM

Asynchronous Transfer Mode. A cell-based data transfer technique in which channel demand determines packet allocation. ATM offers fast packet technology, real times; demand led switching for efficient use of network resources. This is an International standard for cell relay in which multiple service types (such as voice, video or data) are conveyed in fixed-length (53-byte) cells. Fixed-length cells allow cell processing to occur in hardware, thereby reducing transit delays. ATM is designed to take advantage of high-speed transmission media such as E3, SONET, and T3.

ATU-C

ADSL Transmission Unit—central office.

ATU-R

ADSL Transmission Unit—remote.

BAS

Broadband Access Server. Device within the ADSL POP terminating PPP sessions providing access to routing or service selection. Can be the same hardware platform as the LAC.

BRAS

Broadband Remote Access Server. Device that terminates remote users at the corporate network or Internet users at the Internet Service Provider (ISP) network, such as the NetSpeed FireRunner product that provides firewall, authentication, and routing services for remote users.

Community Name

An identification used by an SNMP manager to grant an SNMP server access rights to a MIB.

CPE

Customer premises equipment. Terminating equipment at the subscriber's side of the local telephone loop. CPE is often supplied by the telephone company and is always connected to the telephone company's network. Examples of CPE include telephones, POTS splitters, terminals, modems, and the Cisco 676 router.

DSL

Digital subscriber line. A public network technology that delivers high bandwidth over conventional copper wiring (such as telephone lines) at limited distances. There are five types of DSL: ADSL, HDSL, IDSL, SDSL, and VDSL. All are provisioned through modem pairs, with one modem located at a central office and the other at the customer site. Because most DSL technologies do not use the whole bandwidth of the twisted pair, there is room left for a voice channel. See also *ADSL*.

DSLAM

Digital Subscriber Line Access Multiplexer. A device that concentrates traffic in

DSL implementations through a process of time-division multiplexing (TDM) at the CO or remote line shelf. This device is usually located in the CO for termination of multiple customer DSL devices.

ESS (Error Seconds)

ESS is a generic term with various meanings depending on the signal standards domain in which it's being used.

Ethernet

One of the most popular baseband LANs in widespread use. It is a carrier sense multiple access collision detect (CSMA/CD) system using coaxial cable and developed by Xerox, Intel, and Digital Equipment Corporation. Introduced in 1979. Ethernet Version II is compatible with the IEEE 802.3 CSMA/CD standard.

G.SHDSL

G.SHDSL is a standards-based, multirate version of HDSL-2 and offers symmetrical service. The advantage of HDSL-2, which was developed to serve as a standard by which different vendors' equipment could interoperate, is that it is designed not to interfere with other services. However, the HDSL-2 standard addresses only services at 1.5 Mbps. Multirate HDSL-2 is part of Issue 2 of the standard known as G.SHDSL, and is ratified by the ITU. G.SHDSL builds upon the benefits of HDSL-2 by offering symmetrical rates of 2.3 Mbps.

IGMP

Internet **G**roup **M**anagement **P**rotocol is defined in RFC 1112 as the standard for IP multicasting in the Internet.

It's used to establish host memberships in particular multicast groups on a single network. The mechanisms of the protocol allow a host to inform its local router, using Host Membership Reports, that it wants to receive messages addressed to a specific multicast group.

All hosts conforming to level 2 of the IP multicasting specification require IGMP.

IGMP Snooping

IGMP snooping, as implied by the name, is a feature that allows an Ethernet switch to "listen in" on the IGMP conversation between hosts and routers. When a Switch hears an IGMP report from a host for a given multicast group, the switch adds the host's port number to the IGMP list for that group. And, when the switch hears an IGMP leave, it removes the host's port from the IGMP list.

IP

Internet Protocol. Network layer protocol in the TCP/IP stack offering a connectionless internetwork service. IP provides features for addressing, type-of-service specification, fragmentation and reassembly, and security. Defined

in RFC 791.

ISP

Internet Service Provider. A company that offers individual customers or corporations dialup or leased-line connections to the Internet for a fee.

LAN (Local Area Network)

A non-public data network in which serial transmission is used without store and forward techniques for direct data communication among data stations located on the user's premises.

Lofs (Loss of Frames)

Lofs is a generic term with various meanings depending on the signal standards domain in which it's being used.

Lols (Loss of Links)

Lols is a generic term with various meanings depending on the signal standards domain in which it's being used.

Loss (Loss of Signals)

A loss of signal occurs when n consecutive zeros is detected on an incoming signal.

Lprs (Loss of Power failures)

Lprs is a generic term with various meanings depending on the signal standards domain in which it's being used.

MDF (Main Distribution Frame)

Hardware component in the CO, which provides an interface between outside lines (subscriber lines and trunks) and the switching equipment. The vertical side of the mainframe where the outside plant cables are terminated on connectors/protectors. Also known as mainframe.

MTU/MHU

MTU is Multi-Tenant Unit whereas MHU is Multi-Hotel Unit.

NTP (Network Time Protocol)

NTP is an Internet standard protocol (built on top of TCP/IP) that assures accurate

synchronization to the millisecond of computer clock times in a network of computers. Based on UTC, NTP synchronizes client workstation clocks to the U.S. Naval Observatory Master Clocks in Washington, DC and Colorado Springs CO. Running as a continuous background client program on a computer, NTP sends periodic time requests to servers, obtaining server time stamps and using them to adjust the client's clock.

PPP (Point to Point Protocol)

A successor to Serial Line IP (SLIP), PPP provides router-to-router and host-to-network connections over synchronous and asynchronous circuits.

PPPoE

PPP over Ethernet. The transport of PPP frames over Ethernet.

PSTN (Public Switched Telephone Network)

General term referring to the variety of telephone networks and services in place worldwide. Sometimes called *POTS*.

PVC(Permanent Virtual Circuit, or connection)

Virtual circuit that is permanently established. PVCs save bandwidth associated with circuit establishment and tear down in situations where certain virtual circuits must exist all the time. In ATM terminology, called a permanent virtual connection.

Rack mount

A structure that houses shelves (usually a maximum of four). The unit or container that houses the internal modular circuitry. The shelf consists of slots that hold each module and a backplane that interconnects all modules.

SAR

Segmentation and reassembly. One of the two sub-layers of the AAL CPCS, responsible for dividing (at the source) and reassembling (at the destination) the PDUs passed from the CS. The SAR sub-layer takes the PDUs processed by the CS and, after dividing them into 48-byte pieces of payload data, passes them to the ATM layer for further processing. See also *AAL* and *ATM*.

SDU (Service Data Unit)

Unit of information from an upper-layer protocol that defines a service request to a lower-layer protocol.

Signal Noise Ratio (SNR)

This is a DSL transmission parameter, measured in dB, which indicates the

Signal-to-Noise (S/N) ratio at a receiver point.

SNTP (Simple Network Time Protocol):

SNTP is a simplified version of NTP. SNTP can be used when the ultimate performance of the full NTP implementation described in RFC 1305 is not needed or justified.

SNAP

Subnetwork Access Protocol. Internet protocol that operates between a network entity in the subnetwork and a network entity in the end system. SNAP specifies a standard method of encapsulating IP datagrams and ARP messages on IEEE networks. The SNAP entity in the end system makes use of the services of the subnetwork and performs three key functions: data transfer, connection management, and QoS selection.

SNMP (Simple Network Management Protocol)

Simple Network Management Protocol. The network management protocol used almost exclusively in TCP/IP networks. SNMP provides a means to monitor and control network devices, and to manage configurations, statistics collection, performance, and security.

SVC

Switched Virtual Circuit. Virtual circuit that is dynamically established on demand and is torn down when transmission is complete. SVCs are used in situations where data transmission is sporadic. See also *virtual circuit*. Called a switched virtual connection in ATM terminology.

VC

Logical circuit created to ensure reliable communication between two network devices. A virtual circuit is defined by a VPI/VCI pair, and can be either permanent (PVC) or switched (SVC). Virtual circuits are used in Frame Relay and X.25. In ATM, a virtual circuit is called a *virtual channel*.

VID

VLAN ID. The identification of the VLAN, which is used by the standard 802.1Q. Being on 12 bits, it allows the identification of 4096 VLANs.

VLAN

Virtual LAN. Group of devices on one or more LANs that are configured (using management software) so that they can communicate as if they were attached to

the same wire, when in fact they are located on a number of different LAN segments. Because VLANs are based on logical instead of physical connections, they are extremely flexible.